



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Lakeview District Office
1301 South G Street
Lakeview, Oregon 97630

IN REPLY REFER TO:

6840 (015)

February 27, 2003

Memorandum

To: Field Supervisor, Portland Field Station, U.S. Fish and Wildlife Service
Attn: Chris Allen

From: District Manager

Subject: Submission of Biological Assessment for Lakeview RMP and request for Formal Consultation

To meet the requirements of the Section 7 of the Endangered Species Act, the Lakeview District of the BLM is requesting Formal Consultation on the affects of implementation of the Lakeview Resource Management Plan/Final Environmental Impact Statement. A Biological Assessment for, and a copy of, the final Lakeview Resource Management Plan (RMP) is attached. We completed our assessment of the expected effects of implementation of the plan on Warner suckers, Foskett speckled dace, Hutton tui chubs, Bald Eagles, Lynx, and Columbia spotted frogs. These six Listed or Candidate species were included in the species list you presented to us in a letter dated January 26, 2001 (reference: 01-0531).

Warner sucker designated critical habitat will be affected by the RMP. There is no designated critical habitat designated within the RMP area for the other five species.

Through our analysis we have determined that implementation of the livestock grazing, fire management, recreation, off highway vehicle, energy and mineral resources, and roads and transportation programs, as described in the RMP, will result in adverse effects to one or more of the six species. In addition, management of several resources, as described in the RMP, were determined to May Affect, but Not Likely to Adversely Affect (NLAA) the six species. Some proposed resource management, while NLAA were determined to have beneficial effects to the six species.

We request Formal Consultation and issuance of a Biological Opinion to cover the effects of implementing the RMP on the six species affected by implementation of the RMP.

Steven A. Ellis

Enclosures: (as stated)
cc: Alan Mauer, USFWS
OR-930

Biological Assessment for Proposed Lakeview Resource Management Plan/ Final Environmental Impact Statement

Introduction

The following is a biological assessment (BA) pursuant to the Endangered Species Act, Section 7(c)(1) which evaluates the effects of the Proposed Lakeview Resource Management Plan (Lakeview RMP) on listed and candidate species of fish and wildlife. No listed or candidate plant species occur in the planning area. The following chapters address analysis of effects for individual species:

Chapter I--Fishes (Warner sucker, Fosskett speckled dace, Hutton Springs tui chub)

Chapter II--Bald Eagle

Chapter III--Canada Lynx

Chapter IV--Columbia Spotted Frog

The Lakeview RMP provides the Bureau of Land Management (BLM) with a general framework for managing public land within the Lakeview Resource Area (LRA) of the BLM Lakeview District. The actions planned and analyzed in the Final Environmental Impact Statement (FEIS) associated with the Lakeview RMP conform to the concept of multiple-use and sustained yield as well as the Federal Land Policy and Management Act of 1976. In this context the goal of the plan is to strike a reasonable balance between commodity production and the need to sustain healthy and productive land. To the extent possible, the plan incorporates principles and thought processes of ecosystem management.

Lakeview RMP Planning Area

The Lakeview RMP is bounded on the east by the BLM Burns District, on the south by California and Nevada, on the north by BLM Prineville District, and on the west by the Fremont National Forest. Most of the public land is contiguous, with some scattered or isolated parcels. Land ownership acreages are shown in Table 1.

The Lakeview RMP planning area is semiarid rangeland with scattered mountains and broad valleys, with much of the area dominated by sagebrush and native bunchgrasses. Communities of fir, pine, juniper, quaking aspen, and mountain mahogany are present on more mesic sites at higher elevations. Past heavy grazing use, fire, and rehabilitation efforts have influenced many vegetation communities. Several noxious weed species are present in the planning area and are increasing in abundance.

The LRA lies in the northwest portion of the Great Basin, and with the exception of Goose Lake, all basins are internally drained. The major sub-basins include Warner Lakes, Lake Abert, Summer Lake and Guano.

Although riparian and wetland areas cover less than 1% of public land in the planning area, they contribute substantially to ecosystem productivity and structural and biological diversity. Critically important to fish, birds, and other wildlife species, these areas also affect the quantity and quality of water available for irrigation, livestock watering, recreation, and other human uses.

Public land provides habitat for nearly 350 species of permanent or seasonally resident fish and wildlife, four species of which are listed (Table 2). None of the plant species found within the planning area are currently listed as Federal threatened or endangered. There are 11 plants on the ONHP List 1 (threatened with extinction or presumed to be extinct) and 8 plants on the ONHP List 2 (threatened with extirpation or presumed to be extirpated from Oregon).

The planning area incorporates Lake and portions of Harney County in Oregon, and portions of Washoe County in Nevada. In 2000, the population of Lake County was about 7,422. Personal income is substantially lower than the State average. Agriculture is an important part of the economy in both Oregon counties. Agricultural activity in Lake and Harney County is based on cattle ranching and hay production.

Table 1: Land ownership/administration by county within the Lakeview Resource Area

	LAKE	HARNEY	WASHOE	TOTAL
BLM	2,414,336	744,907	2,172	3,161,416
US Forest Service	264	0	0	264
US Fish and Wildlife Service	625	0	0	625
Department of Defense	2,623	0	0	2,623
Oregon State Lands	111,187	15,974	93	127,161
Private	817,204	38,1487	93	855,445
OTHER ¹	78,504	0	0	78,504
TOTAL	3,424,743	799,029	2,265	4,266,0370

¹Consists of meander surveyed lakebeds, local government and acres of unknown ownership

Table 2 Current federally listed, proposed, or candidate species addressed in this BA for the Lakeview RMP¹

Fishes

Warner sucker	<i>Catostomus warnerensis</i>	T	
Foskett speckled dace	<i>Rhinichthys osculus</i> ssp.		T
Hutton tui chub	<i>Gila bicolor</i> ssp.	T	

Amphibian

Columbia spotted frog	<i>Rana luteiventris</i>	C	
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Birds

Northern bald eagle	<i>Haliaeetus leucocephalus</i>		T
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Mammals

Canada lynx	<i>Lynx canadensis</i>		T
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¹ This list is based on the information received from the USFWS in a letter dated January 26, 2001

Proposed Lakeview RMP

The proposed Lakeview RMP/Final Environmental Impact Statement (FEIS) is based on an analysis of 5 alternatives that were issued for public review in a Draft EIS. The proposed Lakeview RMP/FEIS incorporated those public comments and suggestions that warranted further analysis or clarification.

The Lakeview RMP is a 20-year plan. Uses of public land, decisions, and direction are identified for management of resources that include energy and minerals, water, fire, vegetation, fish, wildlife, wild horses, special status species, livestock, recreation, special management areas, and lands and realty. Plan revisions within the 20-year time frame will be considered if resource conditions or issues are no longer adequately analyzed in the FEIS.

As the Lakeview RMP is implemented, BLM is planning to evaluate geographic regions within each resource area, which will make it possible to examine resource conditions on a larger scale than individual grazing allotments or other artificial administrative boundaries. This is a significant change in approach for BLM.

Management under the Proposed Lakeview RMP will be towards attainment of a Desired Range of Future Conditions. This shift is especially true for riparian areas where the plan will move from the Proper Functioning Condition concept to one based on degree of similarity to site potential. The Proposed Lakeview RMP has a high level of natural resource protection and improvement in ecological conditions while providing commodity production. Additional constraints to commodity production would be implemented to protect sensitive resources.

On a site-specific basis, the adaptive management process will be used to implement the Lakeview RMP. Management actions prescribed in activity plans (e.g., grazing allotment management plans) will be evaluated periodically to identify whether the objectives they were designed to attain are being met. If the evaluation reveals that resource objectives are not being met, then management changes would be implemented.

In the Lakeview RMP, Federally listed species are addressed under Special Status Species. The goal for Special Status animal species is:

Manage public land to maintain, restore, or enhance populations and habitats of Special Status animal species. Priority for the application of management actions would be: (1) Federal endangered species, (2) Federal threatened species, (3) Federal proposed species, (4) Federal candidate species, (5) State listed species, (6) BLM sensitive species, (7) BLM assessment species, and (8) BLM tracking species. Manage in order to conserve or lead to the recovery of threatened or endangered species.

For fish and wildlife species that are not Special Status, the proposed Lakeview RMP contains resource objectives that provide pro-active habitat conservation management. These resource objectives are:

Plant Communities-Riparian/Wetland Vegetation

Restore, maintain, or improve riparian vegetation, habitat diversity, and associated watershed function to achieve healthy and productive riparian areas and wetlands.

Plant Communities-Shrub Steppe

Restore, protect, and enhance the diversity and distribution of desirable vegetation communities, including native and desirable introduce plant species. Provide for their continued existence and normal function in nutrient, water and energy cycles.

Water Resources/Watershed Health

Protect or restore watershed function and processes which determine the appropriate rates of precipitation capture, storage and release.

Ensure that surface water and groundwater influenced by BLM activities comply with or are making significant progress toward achieving State of Oregon water quality standards for beneficial uses as established by the ODEQ.

Fish and Aquatic Habitat

Restore, maintain, or improve habitat to provide for diverse and self-sustaining communities of Wildlife, fishes and other aquatic organisms.

Wildlife and Wildlife Habitat

Facilitate the maintenance, restoration and enhancement of bighorn sheep population and habitat on public land. Pursue management on accordance with ODF&W “Oregon’s Bighorn Sheep Management Plan” in a manner consistent with the principles of multiple use management

Manage big sagebrush cover to meet the life history requirements of sagebrush-dependent wildlife.

Manage upland habitats so that the forage, water, cover, structure, and security necessary for wildlife are available on public land.

Manage forage production to support wildlife population levels identified by the ODFW

Specific management measures to meet these and other objectives for resources and uses of public lands are identified in Chapter 3 of the FEIS.

Relationship of the Proposed Action to Future Federal Actions

The Lakeview RMP is considered to be a mid-scale planning document which links broad-scale efforts (such as the Draft Eastside EIS or the Healthy Rangelands [Range Reform] EIS) with implementation at the fine-scale or activity level. The Lakeview RMP must be in compliance with the decisions made on

broad-scale plans. As a mid-scale plan, the Proposed Lakeview RMP identifies goals and objectives for the planning area. Activity plans identify actions to achieve these goals and objectives. Interdisciplinary teams will evaluate management actions and/or activity plans, and determine appropriate management activities within certain geographic areas. These evaluations will be done using an ecosystem analysis process that looks at human and ecological features, conditions, processes, and interactions within geographic areas. The geographic areas that will be evaluated will vary in size, depending on the issues, concerns, and management objectives as determined by resource area managers and their staffs. Current activity plans will be revised, if necessary, to ensure consistency with Lakeview RMP objectives.

Relationship of Section 7 Consultation for the Lakeview RMP and Future Federal Actions

With few exceptions, the Lakeview RMP does not describe site-specific activities. Because of this, determination of effects for site-specific activities and required Section 7 consultation will occur as those activities are planned. The effects of any site-specific activities described in the Lakeview RMP that can affect species addressed by this BA are described below for individual species.

If new species are listed or proposed during the 20 years addressed by this BA, Section 7 consultation for the Lakeview RMP will be reinitiated. The effects of site-specific activities on future listed or proposed species will be addressed when Section 7 consultation on the Lakeview RMP is conducted for those species.

Chapter I Fishes

Warner sucker (*Catostomus warnerensis*)

Critical habitat has been designated for Warner sucker. Discussions of the sucker in this evaluation are also intended to include the designated critical habitat for the fish.

Consultations Regarding Warner sucker in the Lakeview Resource Area

Since the listing of Warner suckers as threatened in 1985, the Lakeview RA BLM has completed numerous consultations on agency actions affecting the species. The following table lists the years and subject of the consultations completed to date.

Year	Subject	Number
1985	Habitat Management Plan for the Warner Sucker	1-1-86-F-15
1987	Fort Bidwell-Adel County Road Realignment	1-1-87-F-15
1990	Warner Wetlands Habitat Management Plan	1-7-90-F-251
1993	Relocation of Twentymile Stream Gauge	1-7-93-I-554
1994	Lakeview BLM Grazing Program	1-7-94-F-197, 219, 227, 228, 242, 277
1995	Reinitiation of consultation on Grazing Program	1-7-95-F-136
1996	Noxious Weed Control Program	1-7-96-I-250

1996	Reinitiation of consultation on Grazing Program	1-7-96-F-117 Xref:1-7-F-136
1997	Informal consultation on guided fishing activities	No number
1997	Reinitiation of consultation on Grazing Program and consultation on a number of small non-grazing projects	1-7-97-F-168
1999	Reinitiation of consultation on Grazing Program	1-7-99-F-155 Xref: 1-7-97-F-168
1999	Informal consultation on Long Canyon Prescribed Fire	1-7-99-I-407
1999	Grazing permit renewal	Concurrence
2000	Reinitiation of consultation on Grazing Program	1-7-00-F-331 Xref: 1-7-97-F-168
2001	Reinitiation of consultation on Grazing Program	1-7-02-F-538

In 1994, Lakeview RA BLM determined that ongoing site-specific livestock grazing actions were likely to adversely affect Warner suckers in the Warner Valley Watersheds and has, to date, consulted under recurring BOs with USFWS. Present grazing prescriptions and monitoring protocols are in concordance with BOs issued by the Service, and results of grazing monitoring appear annually in reports to USFWS. Consultation has been reinitiated due to changes in the action, changes due to new information and for failure to comply with terms and conditions of the BOs

Warner sucker Distribution and Life History within the Lakeview RMP area

Much of the information in the distribution and life history section of this BA is taken directly from the Recovery Plan for the Threatened and Rare Native Fishes of the Warner Basin and Alkali Subbasin by reference (USFWS 1998). Information from research and observations taken since completion of the recovery plan has been added.

The U. S. Fish and Wildlife Service (Service) listed the Warner sucker as threatened in 1985 (U. S. Fish and Wildlife Service 1985a). Cope (1883) collected suckers he referred to as *Catostomus tahoensis* from the "third Warner lake" (presumably Hart Lake) although he noted differences in the size of scales between the Warner Lake suckers and *C. tahoensis* from Pyramid Lake, Nevada. The Warner sucker was recognized as distinct and described as a new species by J.O. Snyder (1908) based on specimens collected from the Warner Valley in 1897 and 1904. He reported the species from Warner Creek (now Deep Creek), sloughs south of Warner Creek, and Honey Creek. Relationships of the new sucker to existing species were not precisely defined, but Snyder (1908) noted affinities to *C. tahoensis* of the Lahontan Basin, and *C. catostomus* of wide distribution in northern North America. The distinctiveness of the Warner sucker as a species was confirmed by additional collections (Andreasen 1975, Bond and Coombs 1985). Relationships of the Warner sucker are clearly within the subgenus *Catostomus* (Smith 1966), although identification of the closest relative has remained elusive. Preliminary genetic results by Harris (P. Harris, Oregon State University, pers. comm., 1996) places the Warner sucker as a sister species to the Wall Canyon sucker of

Nevada (species yet to be described). Morphologically, all these species are similar, and probably the result of allopatric speciation (speciation in populations that are geographically isolated).

Description

The Warner sucker is a slender-bodied species that attains a maximum recorded Fork Length (FL) (the measurement on a fish from the tip of the nose to the middle of the tail where a AV@ is formed) of 456 millimeters (17.9 inches). Pigmentation of sexually mature adults can be striking. The dorsal two-thirds of the head and body are blanketed with dark pigment, which borders creamy white lower sides and belly. During the spawning season, males have a brilliant red (or, rarely, bronze) lateral band along the midline of the body, female coloration is lighter. Breeding tubercles (small bumps usually found on the anal, caudal and pelvic fins during spawning season) are present along the anal and caudal fins of mature males and smaller tubercles occasionally occur on females (Coombs et al. 1979).

Sexes can be distinguished by fin shape, particularly the anal fin, among sexually mature adults (Coombs et al. 1979). The anal fin of males is broad and rounded distally, whereas the female's is narrower in appearance and nearly pointed or angular. Bond and Coombs (1985) listed the following characteristics of the Warner sucker that differentiate it from other western species of *Catostomus*: Dorsal fin base short, its length typically less than, or equal to, the depth of the head; dorsal fin and pelvic fins with 9 to 11 rays; lateral line (microscopic canal along the body, located roughly at midside) with 73-83 scales, and greater than 25 scales around the caudal peduncle (rear, usually slender part of the body between the base of the last anal fin ray and the caudal fin base); eye small, 0.035 millimeter (0.0013 inch) Standard Length (SL) (straight-line distance from the tip of the snout to the rear end of the vertebral column) or less in adults; dark pigmentation absent from lower 1/3 of body; in adults, pigmented area extends around snout above upper lip; the membrane-covered opening between bones of the skull (fontanelle) is unusually large, its width more than one half the eye diameter in adults.

Historic

The probable historic range of the Warner sucker includes the main Warner Lakes (Pelican, Crump, and Hart), and other accessible standing or flowing water in the Warner Valley, as well as the low to moderate gradient reaches of the tributaries which drain into the Valley. The tributaries include Deep Creek, up to the falls west of Adel, the Honey Creek drainage, and the Twentymile Creek drainage. In Twelvemile Creek, a tributary to Twentymile Creek, the historic range of the sucker extended through Nevada and back into Oregon, but probably not as high as the California reach of the stream.

Early collection records document the occurrence of the Warner sucker from Deep Creek up to the falls about 5 kilometers (3.1 miles) west of Adel, the sloughs south of Deep Creek, and Honey Creek (Snyder 1908). Andreasen (1975) reported that long-time residents of the Valley described large runs of suckers in the Honey Creek drainage, even far up into the canyon area.

Current

Between 1977 and 1991, eight studies examined the range and distribution of the Warner sucker throughout the Warner Valley (Kobetic 1977, Swenson 1978, Coombs et al. 1979, Coombs and Bond 1980, Hayes 1980, White et al. 1990, Williams et al. 1990, White et al. 1991). These surveys

have shown that when adequate water is present, Warner suckers may inhabit all the lakes, sloughs, and potholes in the Warner Valley. The documented range of the sucker extended as far north into the ephemeral lakes as Flagstaff Lake during high water in the early 1980's, and again in the 1990's (Allen et al. 1996). The sucker population of Hart Lake was intensively sampled to salvage individuals before the lake went dry in 1992.

Stream resident populations are found in Honey Creek, Snyder Creek, Twentymile Creek and Twelvemile Creek. Intermittent streams in the drainages may support small numbers of migratory suckers in high water years. No stream resident suckers have been found in Deep Creek since 1983 (Smith et al. 1984, Allen et al. 1994), although a lake resident female apparently trying to migrate to stream spawning habitats was captured and released in 1990 (White et al. 1990). The known upstream limit of the Warner sucker in Twelvemile Creek is through the Nevada reach and back into Oregon (Allen et al. 1994). However, the distribution appears to be discontinuous and centered around low gradient areas that form deep pools with protective cover. In the lower Twentymile Slough area on the east side of the Warner Valley, White et al. (1990) collected adult and young suckers throughout the slough and Greaser Reservoir. This area dried up in 1991, but because of its marshy character, may be important sucker habitat during high flows. Larval, YOY, juvenile and adult suckers captured immediately below Greaser Dam suggest either a slough resident population, or lake resident suckers migrating up the Twentymile Slough channel from Crump Lake to spawn (White et al. 1990, Allen et al. 1996).

A population estimate of Warner suckers in streams was conducted in 1993 on the Honey Creek and Twentymile Creek drainages (Tait and Mulkey 1993b). Approximately 20 percent of available stream habitat in the Honey Creek drainage was sampled. The population sampled within Honey Creek was estimated at 77 adults, 172 juveniles, and 4,616 YOY. Approximately 60 percent of the available stream habitat in the Twentymile Creek drainage was also sampled. Estimates were 2,563 adults, 2,794 juveniles, and 4,435 YOY.

As of 1996, the Hart Lake Warner sucker population was estimated at 493 spawning individuals (with 95 percent confidence intervals of 439-563; Allen et al. 1996). Although this is the only quantified population estimate of Warner suckers ever made for Hart Lake, it is likely well below the abundances found in Hart Lake prior to the drought.

In 1997, Bosse et al documented the continued existence but reduced numbers of Warner suckers in the Warner Lakes. A decline in the number of suckers as a catch per unit effort had declined 75% over the 1996 results. The reduction in sucker numbers was offset by a sharp increase in the percentage composition of introduced game fish, especially white crappie and brown bullhead.

Hartzell and Popper completed the most recent study in 2001. As with the 1997 work, this study indicated the reduction of Warner sucker numbers and an increase of introduced fish. The greatest number of suckers captured was in Hart Lake (96%) with only a few captured in the other Warner Lakes, including Crump. Suckers represented a greater percentage of the catch in relation to introduced and other native fish compared to the efforts of 1997 although a smaller number of sucker

were captured. This was the first year since 1991 that native fish made up a smaller percentage of the catch than introduced fish.

While investigating the distribution of Cowhead Lake tui chub, Scopettone (2001) discovered a single juvenile Warner sucker in West Barrel Creek. West Barrel Creek is a tributary to Cow Head Slough that eventually enters Twelvemile Creek at the known upper extension of suckers in the Twelvemile drainage. This discovery of a sucker in the Cowhead drainage is a significant range extension for Warner suckers.

This section is a brief summary of the known life history characteristics of the Warner sucker. The general distribution of the Warner sucker is known, but limited information is available on stream habitat requirements and spawning habits. Relatively little is known about feeding, fecundity, recruitment, age at sexual maturity, natural mortality, or interactions with introduced exotic fishes. More information can be found in the cited literature.

A common phenomenon among fishes is phenotypic plasticity (the ability of different individuals of the same species to have different appearances despite identical genotypes) induced by changes in environmental factors (Wootton 1990, Barlow 1995). This is most easily seen by a difference in the size of the same species living in different but contiguous, and at times sympatric (occurring in the same area), habitats for a portion of their lives (Healey and Prince 1995, Wood 1995). The Warner Basin provides two generally continuous aquatic habitat types; a temporally more stable stream environment and a temporally less stable lake environment (e.g., lakes dried in 1992). Representatives of a species occupying this continuum form a metapopulation. Observations indicate that Warner suckers and Warner Valley redband trout grow larger in the lakes than they do in streams (White et al. 1990). The smaller stream morph (development form) and the larger lake morph are examples of phenotypic plasticity within metapopulations of the Warner sucker and the Warner Valley redband trout. Expressions of these two morphs in both the Warner sucker and the Warner Valley redband trout might be as simple as each species being opportunistic. When lake habitat is available, the stream morph migrates downstream and grows to become a lake morph. These lake morphs can migrate upstream to spawn or become resident populations while the lake habitat is available. Presumably, when the lake habitat dries up the lake morph is lost but the stream morph persists. When the lakes refill, the stream morph can reinvade the lakes to again become lake morphs. The lake habitat represents a less stable but more productive environment than the metapopulations of Warner suckers and Warner Valley redband trout use on an opportunistic basis. The exact nature of the relationship between lake and stream morphs remains poorly understood and not well studied.

Lake Morphs vs. Stream Morphs

The lake and stream morphs of the Warner sucker probably evolved with frequent migration and gene exchange between them. The larger, presumably longer-lived, lake morphs are capable of surviving through several continuous years of isolation from stream spawning habitats due to drought or other factors. Similarly, stream morphs probably serve as sources for recolonization of lake habitats in wet years following droughts, such as the refilling of the Warner Lakes in 1993 following their desiccation in 1992. The loss of either lake or stream morphs to drought, winter kill, excessive flows and a flushing

of the fish in a stream, in conjunction with the lack of safe migration routes and the presence of predaceous exotic fishes, may strain the ability of the species to rebound (White et al. 1990, Berg 1991).

Lake morph Warner suckers occupy the lakes and, possibly, deep areas in the low elevation creeks, reservoirs, sloughs and canals. Recently, only stream morph suckers have exhibited frequent recruitment, indicated by a high percentage of YOY and juveniles in Twelvemile and Honey Creeks (Tait and Mulkey 1993a,b). Lake morph suckers, on the other hand, were skewed towards larger, older adults (8-12 years old) with no juveniles and few younger adult fish (White et al. 1991) before the lakes dried up in 1992. Since the lakes refilled, the larger lake morph suckers have reappeared. Captured lake suckers averaged 267 millimeters (10.5 inches) SL in 1996 (C. Allen, pers. comm., 1996), 244 millimeters (9.6 inches) SL in 1995 (Allen et al. 1995a) and 198 millimeters (7.8 inches) SL in 1994 (Allen et al. 1995b). Stream caught fish averaged 138 millimeters (5.4 inches) SL in 1993 (Tait and Mulkey 1993b).

Age and Growth

Warner suckers recovered from an ice induced kill in Crump Lake were aged to 17 years old and had a maximum FL of 456 millimeters (17.9 inches) (White et al. 1991). Lake resident suckers are generally much larger than stream residents, but growth rates for adults are not known for either form. Sexual maturity occurs at an age of 3 to 4 years (Coombs et al. 1979), although in 1993, captive fish at Summer Lake Wildlife Management Area, Oregon, successfully spawned at the age of 2 years (White et al. 1991).

Coombs et al. (1979) measured larval growth and found a growth rate of approximately 10 millimeters (0.39 inch) per month during the summer (i.e., when the larvae were 1-4 months old). Sucker larvae at Summer Lake Wildlife Management Area grew as large as 85 millimeters (3.3 inches) in 3 months during the summer of 1991, but this was in an artificial environment (earth ponds) and may not reflect natural growth patterns.

Feeding

The feeding habits of the Warner sucker depend to a large degree on habitat and life history stage, with adult suckers becoming more generalized than juveniles and YOY. Larvae have terminal mouths and short digestive tracts, enabling them to feed selectively in midwater or on the surface. Invertebrates, particularly planktonic (having weak powers of locomotion) crustaceans, make up most of their diet. As the suckers grow, they develop subterminal mouths, longer digestive tracts, and gradually become generalized benthic (living on the bottom) feeders on diatoms (small, usually microscopic, plants), filamentous (having a fine string-like appearance) algae, and detritus (decomposed plant and animal remains). Adult stream morph suckers forage nocturnally over a wide variety of substrates such as boulders, gravel, and silt. Adult lake morph suckers are thought to have a similar diet, though caught over predominantly muddy substrates (Tait and Mulkey 1993a,b).

Spawning Habitat

Spawning usually occurs in April and May in streams, although variations in water temperature and stream flows may result in either earlier or later spawning. Temperature and flow cues appear to trigger spawning, with most spawning taking place at 14-20 degrees Celsius (57-68 degrees Fahrenheit) when stream flows are relatively high. Suckers spawn in sand or gravel beds in slow pools (White et al. 1990, 1991, Kennedy and North 1993). Allen et al. (1996) surmise that spawning aggregations in Hart Lake are triggered more by rising stream temperatures than by peak discharge events in Honey Creek.

Tait and Mulkey (1993b) found YOY were abundant in the upper Honey Creek drainage, suggesting this area may be important spawning habitat and a source of recruitment for lake recolonization. The warm, constant temperatures of Source Springs at the headwaters of Snyder Creek (a tributary of Honey Creek) may provide an especially important rearing or spawning site (Coombs and Bond 1980).

In years when access to stream spawning areas is limited by low flow or by physical in-stream blockages (such as beaver dams or diversion structures), suckers may attempt to spawn on gravel beds along the lake shorelines. In 1990, suckers were observed digging nests in 40+ centimeters (16+ inches) of water on the east shore of Hart Lake at a time when access to Honey Creek was blocked by extremely low flows (White et al. 1990).

Larval and Juvenile Habitat

Larvae are found in shallow backwater pools or on stream margins where there is no current, often among or near macrophytes. YOY are often found over deep, still water from midwater to the surface, but also move into faster flowing areas near the heads of pools (Coombs et al. 1979).

Larvae venture near higher flows during the daytime to feed on planktonic organisms but avoid the mid-channel water current at night. This aversion to downstream drift may indicate that spawning habitat is also used as rearing grounds during the first few months of life (Kennedy and North 1993). None of the studies conducted thus far have succeeded in capturing suckers younger than 2 years old in the lakes, and it has been suggested that they do not migrate down from the streams for 2 to 3 years (Coombs et al. 1979). The absence of young suckers in the lakes, even in years following spawning in the lakes, could be due to predation by introduced fishes (White et al. 1991).

Juvenile suckers (1 to 2 years old) are usually found at the bottom of deep pools or in other habitats that are relatively cool and permanent such as near springs. As with adults, juveniles prefer areas of the streams that are protected from the main flow (Coombs et al. 1979). Larval and juvenile mortality over a 2-month period during the summer has been estimated at 98 percent and 89 percent, respectively, although accurate larval fish counts were hampered by dense macrophyte cover (Tait and Mulkey 1993b).

Adult Habitat

White et al. (1991) found in qualitative surveys that, in general, adult suckers used stretches of stream where the gradient was sufficiently low to allow the formation of long (50 meters (166.6 feet) or

longer) pools. These pools tended to have: undercut banks; large beds of aquatic macrophytes (usually greater than 70 percent of substrate covered); root wads or boulders; a surface to bottom temperature differential of at least 2 degrees Celsius (at low flows); a maximum depth greater than 1.5 meters (5 feet); and overhanging vegetation (often *Salix* spp.). About 45 percent of these pools were beaver ponds, although there were many beaver ponds in which suckers were not observed. Suckers were also found in smaller or shallower pools or pools without some of the above mentioned features. However, they were only found in such places when a larger pool was within approximately 0.4 kilometer (0.25 mile) upstream or downstream of the site.

Submersed and floating vascular macrophytes are often a major component of sucker-inhabited pools, providing cover and harboring planktonic crustaceans which make up most of the YOY sucker diet. Rock substrates such as large gravel and boulders are important in providing surfaces for epilithic (living on the surface of stones, rocks, or pebbles) organisms upon which adult stream resident suckers feed, and finer gravels or sand are used for spawning. Siltation of sucker stream habitat increases the area of soft stream bed necessary for macrophyte growth, but embeds the rock substrates utilized by adult suckers for foraging and spawning. Embeddedness, or the degree to which hard substrates are covered with silt, has been negatively correlated with total sucker density (Tait and Mulkey 1993).

Habitat use by lake resident suckers appears to be similar to that of stream resident suckers in that adult suckers are generally found in the deepest available water where food is plentiful. Not surprisingly, this describes much of the habitat available in Hart, Crump, and Pelican Lakes, as well as the ephemeral lakes north of Hart Lake. Most of these lakes are shallow and of uniform depth (the deepest is Hart Lake at 3.4 meters (11.3 feet) maximum depth), and all have mud bottoms that provide the suckers with abundant food in the form of invertebrates, algae, and organic matter.

Monitoring

The objectives of implementation monitoring are to determine if a given standard or requirement is being properly applied on the ground as intended and documented. Monitoring sites were chosen in 1994 that accurately portray riparian or stream channel conditions for each pasture following grazing actions. BLM personnel measure residual herbaceous stubble heights, and stream temperatures in all allotments at the end of the growing season in October. Most years, stream temperatures are measured June through October. Riparian score cards are being established to determine riparian site potential. These descriptions will form the basis of future monitoring and goal determination and they are an integral part of the riparian management proposed in the RMP.

A long term monitoring report was submitted to the USFWS in March 2001. This report summarized the results from several years of stream survey, photo point, temperature and macroinvertebrate monitoring in Warner sucker habitats. The report also presented a recent grazing history.

Results of grazing monitoring appear annually in reports to USFWS, meeting requirements of the Biological Opinion.

Current Conservation Efforts for Warner Sucker

Salvage, Refuge Populations, and Captive Propagation

In early 1991, the threat of a fifth consecutive drought year prompted the agencies responsible for managing the Warner sucker to plan a salvage operation to establish a refuge population of suckers at the Service's Dexter National Fish Hatchery and Technology Center (Dexter) in New Mexico. Salvage operations consisted primarily of intensive trap netting in Hart Lake to collect suckers, then transportation of the captured fish to a temporary holding facility (a series of five small earth ponds linked by a 200 meter (666.6 foot) ditch) at ODFW's Summer Lake Wildlife Management Area. The suckers were held at Summer Lake Wildlife Management Area for five months until September 1991, when 75 adults were recaptured and transported to Dexter.

While being held at Summer Lake Wildlife Management Area, the suckers from Hart Lake spawned successfully, leaving an estimated 250+ young in the Summer Lake Wildlife Management Area holding ponds after the adults were taken to Dexter. The young suckers did well in the ponds, growing approximately 85 millimeters (3.3 inches) during their first summer and reaching sexual maturity at the age of only two years. Sucker larvae were observed in the ponds during the summer of 1993, just over two years after the original wild suckers from Hart Lake were held there. Approximately 30 of the two year-old suckers were captured and released in Hart Lake in September 1993. In June 1994, over 100 10-17.5 centimeter (4-7 inch) Warner suckers were observed in the Summer Lake Wildlife Management Area ponds. In 1996, nine adult fish were observed in these ponds along with about 20 larvae.

The suckers taken to Dexter were reduced from 75 to 46 individuals between September 1991 and March 1993, largely due to *Lernaea* (anchor worm) infestation. In March 1993, the 46 survivors (12 males and 34 females) appeared ready to spawn, but the females did not produce any eggs. Between March 1993 and March 1994, *Lernaea* further reduced the population to 20 individuals (5 males and 15 females) (B. Jensen, USFWS, pers. comm., 1994). In May 1994, the five males and seven of the females spawned, producing a total of approximately 175,000 eggs. However, for reasons that are not clear, none of the eggs were successfully fertilized. The remaining 20 fish at Dexter died in 1995 (B. Jensen, pers. comm., 1995). In November of 1995, approximately 65 more suckers from Summer Lake Wildlife Management Area were transferred to Dexter for spawning purposes but as yet no attempts to spawn these fish have occurred.

Fish Passage Improvements

In 1991, the BLM installed a modified steep-pass Denil fish passage facility on the Dyke diversion on lower Twentymile Creek. The Dyke diversion structure is a 1.2 meter (4 feet) high irrigation diversion that was impassable to suckers and trout before the fishway was installed. It blocked all migration of fishes from the lower Twentymile Creek, Twentymile Slough and Greaser Reservoir populations from moving upstream to spawning or other habitats above the structure. To date, no suckers have been observed or captured passing the structure, but red band trout have been observed and captured in upstream migrant traps. Hopefully, the fishway will re-establish a migration corridor, and allow access to high quality spawning and rearing habitats.

An evaluation of fish passage alternatives has been done for diversions on Honey Creek which identifies the eight dams and diversions on the lower part of the creek that are barriers to fish migration (Campbell-Craven Environmental Consultants 1994). In May 1994, a fish passage structure was tested on Honey Creek. It consisted of a removable fishway and screen. The ladder immediately provided passage for a small redband trout. These structures were removed by ODFW shortly after their installation due to design flaws that did not pass allocated water.

Research

Research through 1989 summarized in Williams et al. (1990) consisted of small scale surveys of known populations. Williams et al. (1990) primarily tried to document spawning and recruitment of the Hart Lake population, define the distributional limits of the sucker in the streams, and lay the groundwork for further studies. White et al. (1990), conducted trap net surveys of the Anderson Lake, Hart Lake, Crump Lake, Pelican Lake, Greaser Reservoir, and Twentymile Slough populations. A population estimate was attempted for the Hart Lake population, but was not successful. Lake spawning activity was observed in Hart Lake, though no evidence of successful recruitment was found.

White et al. (1991) documented the presence of suckers in the Nevada reach of Twelvemile Creek. This area had been described as apparently suitable habitat by Williams et al. (1990), but suckers had not previously been recorded there.

Kennedy and North (1993) and Kennedy and Olsen (1994) studied drift behavior and distribution of sucker larvae in streams in an attempt to understand why recruitment had been low or nonexistent for the lake morphs in previous years. They found that larvae did not show a tendency to drift downstream and theorized that rearing habitat in the creeks may be vital to later recruitment.

Tait and Mulkey (1993a,b) investigated factors limiting the distribution and abundance of suckers in streams above the man-made stream barriers. The detrimental effects of these barriers are well-known and easily understood, but there may be other less obvious factors that are also affecting the suckers in streams. These studies found that general summertime stream conditions, particularly water temperature and flows, were poor for most fish species. Recent studies have concentrated on population estimates, marking fish from Hart Lake and monitoring the recolonization of the lakes by native and non-native fishes (Allen et al. 1995a,b, Allen et al. 1996).

Improved Federal Land Management

The Federal agencies responsible for management of the habitat in the Warner Basin have consulted on activities that might impact the Warner sucker. On May 21, 1995, the BLM, Forest Service (FS), National Marine Fisheries Service (NMFS) and the Service signed the Streamlining/Consultation Guidelines (streamlining: Streamlining Consultation Procedures Under section 7 of the ESA) to improve communication and efficiency between agencies. In the Warner Basin, the outcome of streamlining has been regular meetings between the Federal agencies conducting and reviewing land management actions that may affect Warner suckers. These meetings have greatly improved the communication among agencies and have afforded all involved a much better understanding of issues throughout the entire watershed. As a result of close coordination, the FS and BLM have modified many land

management practices, thus reducing negative impacts, and in many cases bringing about habitat improvements to Warner suckers and Warner Valley redband trout.

Foskett Speckled Dace (*Rhinichthys osculus* ssp.)

Consultations Regarding Foskett speckled dace.

Only one consultation has been completed between the BLM and USFWS on Foskett dace. That consultation (1-1-86-F-40) covered BLM acquisition of Foskett Spring from the private landowner and subsequent management of the spring.

Monitoring

Monitoring has been limited to periodic inspection of the dace habitat, photo point and vegetation sampling. In 1996/97 an investigation of the habitat and fish population was completed (Fish Research Project Report, Foskett Speckled Dace Investigation, 1996-1997, Dambacher, J., A Talabere, D. Hill and D. Markle)

Taxonomy

The Foskett speckled dace was listed as threatened in 1985, (U.S. Fish and Wildlife Service 1985b). The Foskett speckled dace (*Rhinichthys osculus* ssp.) is an allopatric form that is currently being described (hence, it has not yet received a subspecific name). The timing of the isolation between the Warner Lakes Subbasin and the Coleman Subbasin is uncertain although it might be as recent as 10,000 years ago (Bills 1977).

Description

Despite the undescribed status there is information regarding its identification. The Foskett dace can be distinguished from other speckled dace by external characteristics, such as: much reduced lateral line, about 15 scales with pores; about 65 lateral line scales; a large eye; the dorsal fin is positioned well behind the pelvic fin but before the beginning of the anal fin; barbels are present on most individuals (C. Bond, Oregon State University, pers. comm., 1990).

Historic and Current

Foskett speckled dace were probably distributed throughout prehistoric (approximately 12,000 years ago) Coleman Lake during times that it held substantial amounts of water. As the lake dried, the salt content of the lake water increased. Suitable habitat would have been reduced from a large lake to any spring systems that provided enough habitat for survival.

Springs that remain within the vicinity of Coleman Lake include Foskett Spring and Dace Spring. Both springs are extremely small and shallow with limited habitat for fish. Foskett Spring has the only known native population of Foskett speckled dace. The spring originates in a pool about 5 meters (16.6 feet) across, then flows toward Coleman Lake in a narrow, shallow channel (approximately 5 centimeters (2 inches) deep and 5 centimeters (2 inches) wide). The source pool has a loose sandy bottom and is choked with macrophytes (large plants that are visible to the naked eye). The spring brook (outflow channel) eventually turns into a marsh and finally dries up before reaching the bed of Coleman Lake.

Bond (U.S. Fish and Wildlife Service 1985b), estimated the population of Foscett speckled dace in Foscett Spring to be 1,500 individuals. Dambacher (pers. com. 1998) estimated there to be about 204 Foscett speckled dace in the source pool, 702 in the spring brook, and 26,881 in the shallow pool/marsh. The shallow pool/marsh habitat is outside the exclosure fence and dries periodically.

Dace Spring is approximately 0.8 kilometer (0.5 mile) south of Foscett Spring. This spring may have originally been occupied by Foscett speckled dace but there were none found in the 1970's. In November 1979, 50 Foscett speckled dace were transplanted into the then fishless Dace Spring from Foscett Spring (Williams et al. 1990). In August 1980, 50 more Foscett speckled dace were introduced into Dace Spring. Dace Spring is smaller than Foscett Spring and even more choked with macrophytes. The spring outflow terminates in a cattle watering trough where fewer than 20 Foscett speckled dace were seen in 1996 (A. Munhall, Bureau of Land Management, pers. comm., 1996). Dambacher found 19 in 1997. The watering trough is at approximately the same height/elevation as the spring head with a pipe entering into the side of the trough. This allows the fish access into the trough, but does not allow the fish to return to the spring.

Nothing is known about the biology/ecology of the Foscett speckled dace. The only habitat information available regards plant species found around the springs, which include rushes, sedges, *Mimulus*, Kentucky bluegrass (*Poa pretensis*), thistle and saltgrass (*Distichlis spicata*). Foscett Spring is a cool-water spring with temperatures recorded at a constant 18 degrees Celsius over a 2 year period (A. Munhall, pers. comm., 1997). No information is available on growth rates, age of reproduction or behavioral patterns.

Current management of the Foscett and Dace spring systems is livestock exclusion. Proposals to burn dense vegetation, place flow-monitoring weirs, and develop open water pools have yet to be implemented or fully evaluated.

Hutton Tui Chub (*Gila bicolor ssp.*)

There is very little information regarding the ecology of the Hutton tui chub. Bills (1977) examined gut content and found the Hutton tui chub to be omnivorous with a majority of food eaten being filamentous algae. It appears that dense aquatic algae is needed for spawning and rearing of young (J. Williams pers. comm., 1995). No information is available on growth rates, age of reproduction or behavioral patterns.

Hutton Springs and its outflow channel is solely on private land. Rumors of another spring on public land containing fish have been investigated but not substantiated. The current land owner has excluded livestock from the spring head, but little other work has been completed on the spring. It appears that in the past the spring head may have been excavated judging from the dirt piles around the spring.

Threats to the Hutton and Foscett Spring Systems -.

Springs and wet meadow areas have relatively high amounts of soil moisture and can support higher levels of plant growth that extend longer into the season than drier sites. This can lead to a disproportionate amount of use by livestock, especially late in the grazing season. The impacts by livestock generally reduce the integrity and complexity of these spring areas in much the same way riparian areas are degraded. Impacts range from reduction of the riparian vegetation surrounding spring areas by trampling and grazing to increased sedimentation from trampling and decreasing aquatic vegetation from the smothering effects of silt. Some springs have also been tapped or partially diverted to watering troughs.

The Lakeview Resource Area of Lakeview District BLM currently maintains fences at Foskett and Dace Springs, and the private land owner does likewise at Hutton Spring to prevent cattle use. For species inhabiting such small spring systems, loss of habitat can equate with extinction. Even minor mechanical manipulations of the springs such as channelization or diversion of the spring for agriculture or irrigation purposes could lead to loss of habitat. The outflow from Dace Spring terminates in a cattle watering trough where a number of Foskett speckled dace were seen in 1996. Although troughs may provide some permanent water, it is unlikely that these above-ground water sources provide the dace with suitable, sustainable habitat. Foskett speckled dace probably get entrained in the flow to the trough but access back to the spring is not possible. The overflow water from the trough spills to the ground and any dace entrained in this flow (particularly larval dace) would die. Plants are abundant at both Foskett and Dace Springs. The effects of increased plant growth on the habitat requirements of the Foskett speckled dace are unknown.

Hutton Spring is within 3.2 kilometers (2 miles) of a metallurgical waste disposal site and a chemical waste disposal site. Wastes from the metallurgical dump were removed and the site cleaned by the Oregon Department of Environmental Quality (DEQ). The chemical contamination is mainly herbicides (2,4-D; 2,4-DCP; MCPA) that were dumped by a private company between 1967 and 1971. In 1976, the state was unsuccessful in legal attempts to have the private company clean the site. This led to the need to declare the site unsafe and the state subsequently purchased the land (10.3 acres) for the purpose of containing the chemicals. The location of the dump site is about 2 miles south of Hutton Spring. A plume of contamination has migrated about 600 meters (2,000 feet) west northwest and has reached West Alkali Lake. The state bought an additional 400 acres of the contaminated site to monitor movement of the plume and has installed fences to prevent cattle from entering the contaminated area. DEQ has assessed the area and reported that the catastrophic spread of contamination into surrounding springs (including Hutton Spring) appeared to be extremely remote (Brian McClure, DEQ, pers. comm., 1995).

Conclusion/Analysis of Effects

The Lakeview RMP has incorporated the Recovery Plan for the Threatened and Rare Native Fishes of the Warner Basin and Alkali Subbasin by reference (USFWS 1998). Within its authority the BLM will implement the actions outlined in the recovery plan. The RMP also substantially changes the goals of riparian management to move from basic Proper Functioning Condition to goals based on site potential. In addition, the Lakeview RMP implements aquatic conservation strategies on the watershed scale (Geographical Management Areas), thereby avoiding maintenance of fragmented

networks of degraded habitat that do little to recover metapopulations. These above actions will promote the recovery of the Warner sucker over current direction.

BLM determines that implementation of the Lakeview RMP is not likely to jeopardize the continued existence of the listed fish species, but that it may affect and is likely to adversely affect Warner sucker and Foskett dace populations. There should be no effect to the Hutton chub population. Specific land management directions addressed in the Lakeview RMP that could have adverse effects to Warner suckers and Foskett dace on public land include mining, especially for locatables, fire management, grazing, recreation, OHV use, and roads.

Moreover, the Lakeview RMP states explicitly and repeatedly that when specific land use actions in activity plans are proposed, BLM will: (1) determine if the actions may affect listed species and (2) promptly initiate consultation with USFWS to avoid or mitigate impacts when a may-affect determination is made. BLM intends to keep lines of communication open through informal means with the Service so that any issues unforeseen in the Lakeview RMP may be addressed as expeditiously as possible.

Table 3 summarizes the array of land use actions authorized under the Lakeview RMP, the potential affects of these actions on Warner sucker and Foskett Dace habitats, Lakeview RMP provisions for avoidance or mitigation of adverse effects, and the determination of effects call.

Potential effects to the dace and chub are less than for suckers because of their isolated habitats and lack of watershed level cumulative effect potential. Because some marginal watershed level effects above Foskett Spring may influence flows in the spring, more watershed level impact should be considered there.

Because Hutton Chub habitat is exclusively on private land, federal land management will have no direct effect. Given current understanding of ground water movement in relation to Hutton Spring, No Effect is expected to Hutton Chub habitats based on the implementation of the RMP on the Lakeview Resource Area. If the BLM is able acquire Hutton Spring in the future, consultation will be initiated on any proposed management.

Table 3**Analysis of Effects of Land Use Authorizations Identified in the Lakeview RMP on Warner Sucker (WSK) and Foskett Speckled Dace (FSD)**

Land Use	Potential Effects of Use on Fish Habitat	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
Plant Communities Shrub Steppe	Emphasizing natural values and basing management on watershed level effects will improve fish habitat	Projects will be reviewed on a case-by-case basis, and if in listed species watersheds, will require coordination and possible consultation with USFWS.	WSK- Not Likely to Adversely Affect (NLAA) , potential beneficial effect from increased water quality and improved watershed conditions. FSD-No effect.
Plant Communities Riparian Wetland Vegetation	Delineation of riparian conservation areas (RCA)s, management based on riparian management objectives and site potential, and road management in RCAs will improve fish habitat.	Projects will be reviewed on a case-by-case basis, and if in listed species watersheds, will require coordination and possible consultation with USFWS.	WSK-NLAA , potential beneficial effect from increased water quality and improved watershed conditions. FSD- No Effect Current and projected management is grazing exclusion
Plant Communities Forest and Woodlands	Management of juniper stands will improve watershed conditions. Long-term beneficial effects through reduced likelihood of catastrophic fire; increased forage in uplands will attract grazing animals, decreasing likelihood of overuse in RCAs; input of sediment to streams caused by management operations may cause short term negative impacts	Timber harvest will be prohibited in RCAs with listed fish unless catastrophic events (e.g., fire, flood, insects) result in degraded riparian conditions that would benefit from salvage, and where salvage would not adversely affect WSK habitat or retard or prevent attainment of RMOs; proposals for forest management in WSK watersheds will require consultation with USFWS.	WSK-NLAA due to avoidance and protection of RCAs in timber management programs and beneficial effects from improved watershed conditions resulting with juniper management. FSD-No Effect due to no associated forest and woodland resources.
Special Status Plants	Management of special status plants is site specific. Effects on fish habitat will be dependent on the proposed plant management and where the action occurs.	Listed fish effects will be considered in any specific management plans for plants. These effects will be eliminated or altered to benefit listed fish species.	No effect.
Noxious Weeds and Competing Undesirable Vegetation	By promoting improved plant communities, noxious weed management would benefit riparian/wetland habitats, with greater emphasis on restoration of infested areas. Use of herbicides and mechanical control could impact fish habitat if	Strict compliance with application methods that eliminate or reduce the chance of habitat effects. Compliance with existing and future reasonable and prudent measures outlined in consultation.	WSK and FSD-NLAA due to use controls. Beneficial effect by improving riparian vegetation conditions and reducing noxious weed

Table 3**Analysis of Effects of Land Use Authorizations Identified in the Lakeview RMP on Warner Sucker (WSK) and Foscett Speckled Dace (FSD)**

Land Use	Potential Effects of Use on Fish Habitat	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
	not properly applied.		competition. Current consultation is in effect.
Soils	Protect and manage soils by implementing Best Management Practices (BMP's) on all potentially surface disturbing activities.	This resource goal inherently reduces impacts to listed fish by requiring soil and watershed protection.	WSK-FSD-NLAA , beneficial effect by improving watershed conditions.
Water Resources/Watershed Health	Improving watershed condition, road closure and rehabilitation, and livestock management would improve watershed conditions. Water quality goals are set to meet state standards, including state anti-degradation policy	The resource goals and management prescriptions associated with this resource coincide closely with the needs of fish habitat and listed fish species.	WSK-FSD-NLAA , beneficial effect by improving watershed conditions, and water quality improvement.
Fish and Aquatic Habitats	Management of Fish and Aquatic habitats is directed to meet the needs of native fishes including listed fish.	The resource goals and management prescriptions associated with this resource directly relate to improving native fish habitats and in themselves consider the listed fish species.	WSK-FSD-NLAA , beneficial effect by improving fish habitat conditions, prescribing other resource management and allowing for water right acquisition for habitat improvement.
Wildlife and Wildlife Habitat	Management goals for big game, sagebrush dependent species and upland habitats, while having some watershed improvement potential, will have little direct impact on fish habitat.	Potential projects in listed fish habitats will require site specific mitigation to avoid negative impact to listed species.	WSK-FSD-No Effect.
Special Status Animal Species	Implementation of the Recovery Plan for the Threatened and Rare Native Fishes of the Warner Basin and Alkali Subbasin was common to all alternatives in the RMP. Any other SSP management should result in better riparian habitat conditions.	Any implementation of recovery efforts or conservation agreements will be evaluated to determine effects to listed species and adverse effects mitigated or consultation completed if necessary.	WSK- NLAA , beneficial effect. Implementation of the Recovery Plan is a key part of the RMP. FSD-No Effect due to lack of potential habitats for other species specific to the Foscett and Dace Spring areas
Livestock Grazing Management	Degradation of water quality and bank stability from presence of livestock	Grazing in Riparian Conservation Areas (RCAs) will be managed to meet standards of	WSK- Likely to Adversely Affect (LAA) due to slower

Table 3**Analysis of Effects of Land Use Authorizations Identified in the Lakeview RMP on Warner Sucker (WSK) and Fosskett Speckled Dace (FSD)**

Land Use	Potential Effects of Use on Fish Habitat	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
		Rangeland Health and to maintain or enhance Riparian Management Objectives (RMOs); proposals for changes in grazing management in WSK watersheds will require consultation with USFWS.	rate of RCA restoration with livestock present. No change is planned to the current livestock management that has been under formal consultation. FSD-No Effect because grazing is excluded on Fosskett and Dace Spring habitats.
Wild Horses	Wild horse use is detrimental to riparian systems. However, there is no wild horse use in current occupied habitat.	WHMPs will consider listed species and consultation if needed. Mitigation thru fencing and off site water development would be considered.	WSK-FSD- No Effect due to lack of overlap in wild horse use areas and occupied habitat
Special Management Areas	Current ACEC/RNA proposals do not overlap with occupied habitat. Some improvement in watershed condition within the Warner system may occur. Designation of Twelvemile Creek as a Recreational River could impede management implementation on occupied habitat.	ACEC management promotes attainment of healthy and self-sustaining plant and animal communities. Recreational River designation for Twelvemile Creek is tied to occupied habitat and benefiting the listed species should be a consideration in management.	WSK-FSD- No Effect
Cultural and Paleontological Resources	No direct or indirect impacts anticipated	No mitigation or avoidance measures identified.	WSK-FSD- No Effect
Human Uses and Values	Increasing recreation use and development could compound the negative effects of recreational use.	Any development activity would require assessment of effect on listed species. Impacts would be mitigated or consultation completed.	WSK- NLAA. Potential effects would be mitigated by project design or abandonment. FSD-No Effect due to limited area and stricter control of use.
Air Quality	Meeting Air Quality Goals could limit the amount of prescribed fire for watershed treatment, but on a limited basis.	None anticipated	WSK-FSD-No Effect

Table 3**Analysis of Effects of Land Use Authorizations Identified in the Lakeview RMP on Warner Sucker (WSK) and Foscett Speckled Dace (FSD)**

Land Use	Potential Effects of Use on Fish Habitat	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
Fire Management	No impacts if fires are suppressed before entering RCAs; within RCAs, short-term adverse effects to water quality may occur if RCA not at PFC; short-term impacts of drafting water from streams; fire suppression activities upland in the watershed may result in short term inputs of sediment to streams; possible impairment of water quality from fireline construction related to fire suppression	All fire management actions will be designed to allow attainment of RMOs, including locating fire camps and helitack ports outside RCAs. Proposals for prescribed fire management in WSK watersheds will require consultation with USFWS prior to ignitions.	WSK- LAA due to short-term impacts likely in emergency or catastrophic fire suppression activities FSD-No Effect due to limited area and restricted use
Recreation	Degradation of water quality and bank stability from concentrated recreational use or development of facilities; negative impacts from harassment of fish may occur due to presence of recreationists or their equipment in spawning or rearing areas; ground disturbance caused by traffic in uplands may increase sediment input to streams. Recreation use on public lands is primarily unregulated and outside the scope of a federal action	Use limitations or closures will be implemented if RMOs are not met due to recreation use; new recreational facilities will not be constructed in RCAs.	WSK-FSD- LAA because effects to habitats would have already occurred, before use limits or closures would be considered. The risk to FSD is low, but still a potential.
OHV	Degradation of water quality and bank stability from concentrated use in RCAs; negative impacts from harassment of fish may occur due to presence of OHVs in spawning or rearing areas; ground disturbance caused by traffic in uplands may increase sediment input to streams.	Use limitations or closures will be implemented if RMOs are not met due to OHV use.	WSK-FSD- LAA because effects to habitats would have already occurred, before use limits or closures would be considered. The risk to FSD is low, but still a potential.
Visual Resources	VRM management could preclude or reduce effectiveness of some watershed level vegetation management alternatives. Effects would be small in scale and could be minimized by adjusting projects to meet VRM needs while still meeting	Adjust project design to meet VRM goals.	WSK-FSD-No Effect

Table 3**Analysis of Effects of Land Use Authorizations Identified in the Lakeview RMP on Warner Sucker (WSK) and Foskett Speckled Dace (FSD)**

Land Use	Potential Effects of Use on Fish Habitat	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
	watershed treatment goals.		
Energy and Mineral Resources	Impairment of water quality and riparian integrity from machinery operation and surface disturbance; contamination from toxic or acidic effluents from mines or chemicals used in exploration or operations; possible impairment of water quality from road construction related to transport of mining materials	Adjustments in location, timing, and duration of minerals activities in RCAs will be required. Operations outside RCAs must maintain and protect fish habitat or mitigate for impacts. Currently, no mining claims occur in WSK watersheds.	WSK-FSD LAA due to difficulty of complete avoidance or mitigation of sedimentation, chemical spills, and surface disturbance, especially for locatables. The greatest effect potential to FSD is from geothermal development that could impact the aquifer associated with the spring.
Lands and Realty	Potentially results in positive or negative effects to habitat resulting from a wide range of anticipated land and realty actions; potentially adjusts the amount of listed fish habitat held in public ownership	Land acquisitions or exchanges may increase the amount of habitat held in public ownership; exchange of lands with listed fish habitat would be avoided in accordance to BLM policy. Adjustments in location, duration, and timing of lands and realty related activities such as road construction and issuance of rights-of-way will be required when they are likely to impact listed fish habitat.	WSK- NLAA , potential beneficial effect if critical habitat is brought into federal management. FSD-No Effect since the spring has already been acquired.
Roads and Transportation	Major source of sediment transport from surface disturbances to stream systems; road use is associated with most land use practices; road construction may occur with mining, fire suppression, forest/woodland management, recreation or lands and realty related activities.	Road and drainage features that retard attainment of RMO's would be relocated or reconstructed; new roads would meet RMO's and avoid adverse effects to listed fish, but construction of new roads in areas which could impact listed fish would be extremely unlikely.	WSK-LAA due to difficulty of complete avoidance of sedimentation and surface disturbance. FSD-No Effect due to lack of watershed level impacts to the springs.

Effects Narrative For Warner Sucker, Fosskett Dace and Hutton Chub.

The following narrative is a combination of the effects discussion from the RMP for the proposed action of the Riparian/Wetland Vegetation, Watershed/Water Quality and Fish and Aquatic Habitat sections. Because these resources are closely tied, their effects discussion applies directly to listed fish effects.

An action common to all alternatives, including the proposed action, was the implementation of the Recovery Plan for the Threatened and Rare Native Fishes of the Warner Basin and Alkali Subbasin (USFWS 1998). Compliance with the recovery plan will be a benefit to the listed and rare fish in the Lakeview Resource Area. The BLM will comply with the plan where applicable, but many of the actions needed are on private land. The Bureau will act as a partner when ever possible to facilitate listed fish recovery on public and private lands.

The shrub-steppe management goals and actions focus on restoring and maintaining natural values while providing forage production. Restoration of degraded conditions would occur on a watershed level. This would move upland watershed vegetation communities toward potential natural condition (PNC). Vegetation communities in PNC could maintain and improve upland watershed condition. Improved watershed conditions would translate to improved water quality and flow regime conditions and thereby improved conditions for Warner suckers. Effects to Fosskett dace and Hutton chub could not be measured unless spring flows increase, an unlikely event.

The riparian and wetland vegetation management goals and actions focus on identification and development of riparian management objectives. Restoration would be on a case-by-case basis. Restoration would move watersheds toward achieving the desired range of conditions. Removing roads, which negatively impact streams within riparian conservation area, would allow full development of floodplains and reduce sediment loads improving watershed condition. As with the watershed level effects described for the shrub steppe management, a change in resource management to improve watershed condition would benefit Warner suckers. Effects to Fosskett dace and Hutton chub could not be measured unless spring flows increase, an unlikely event.

Western juniper, old growth, snag management, and bighorn sheep management would benefit riparian/wetland habitat. The western juniper woodlands management goals and actions focus on protection of resource values. Proposed management would move juniper ecosystems toward potential natural conditions. The implementation of harvest BMP's would protect watershed functions. Juniper management would improve ground cover and benefit fish and aquatic habitats as runoff and erosion were reduced. Juniper management associated with riparian/wetland habitats would have a direct beneficial effect and could increase spring flows. Again, the watershed level effects would benefit Warner suckers. Effects to Fosskett dace and Hutton chub could not be measured. Juniper effects to Fosskett and Hutton springs are not currently a concern.

Managing special status plant habitats based on desired range of conditions and landscape-level effects would stabilize improvement trends and allow for better long-term habitat conditions over emphasizing management based on individual species. The special status plant species management goals and actions focus on restoration and enhancement and create new Special Management Areas (SMA's).

SMA management would coincide with ecological or watershed goals and thus would have a low risk for negative effects on watershed function. Because of the limited size of special status plant sites, improvement in their habitat condition are not expected to effect listed fish or their habitats.

With greater emphasis on restoration of infested areas, noxious weed management would benefit riparian/wetland habitats. The noxious weed (and competing undesirable vegetation) management goals and actions focus on an integrated approach. The populations of weeds would decrease over time and thus have a positive effect on restoring watershed function. Both from a watershed level improvement and a direct riparian condition improvement, weed management is expected to benefit listed fish and their habitats. Currently there are no known noxious weed concerns with Foskett dace habitats, but the potential exists. There are numerous weed management sites in Warner sucker critical habitat, and these habitats would benefit from continued weed management.

The water resources and watershed health management goals and actions focus on reducing current impacts and maintaining good condition. Reducing impacts and condition maintenance would help restore watershed function due to implementation of BMP's, minimum standards for upland grazing, and evaluation of near stream grazing. Management designed to restore water quality would result in improved watershed and stream conditions, water quality, and fish and aquatic habitats. Acquisition of water rights for conversion to instream flows would have substantial benefits to fish habitats by stabilizing flows, maintaining water in habitats, and maximizing riparian conditions. Setting objectives based on site potential would be beneficial to fish habitat. Designation and management of riparian conservation areas and establishing a desired range of conditions would be beneficial to fish and aquatic habitat. The fish and aquatic habitat management goals and actions focus on protection and restoration of instream and near stream condition. Protection of fish habitat, riparian condition, streams, and the watersheds that support them would promote healthy watershed function. Improvement to the watershed resource is key to long-term improvement of listed fish critical habitat and recovery. Management goals prescribed in the proposed action will benefit Warner suckers. Effects to Foskett dace and Hutton chub could not be measured unless spring flows increase, an unlikely event.

Managing upland habitats so the forage, water, cover, structure, and security necessary for game and nongame wildlife species would benefit riparian/wetland vegetation. Managing livestock forage production to support an increase of 9,138 additional wildlife AUM's would have a minimal impact on riparian/wetland vegetation. The wildlife and special status animal species management sections focus on maintenance, restoration, or enhancement of ecosystems. Ecosystem management would support watershed function by moving vegetation and soil conditions closer to potential natural community. Considering nongame species across most areas could result in additional positive effects to fish and aquatic habitats over concentrating on game species only. Improving conditions for all wildlife should relate directly to fish and aquatic habitat improvements. The expected effects would be minimal and not measurable due to the localized nature of the effected resources and so no effect is expected to Warner sucker, Foskett Dace or Hutton chub habitats.

Grazing impacts on riparian/wetlands would be limited as long as minimum standards for rangeland health were met. Implementing livestock grazing systems that promote the recovery or maintenance of

riparian systems to the desired range of conditions (based on site potential) in riparian conservation areas would benefit riparian/wetland habitats. The potential for authorization of suspended nonuse and temporary nonrenewable grazing use could cause impacts to riparian/wetland vegetation; however, these uses would only be authorized if conflicts with other uses would not occur. The abandonment and rehabilitation of rangeland projects that do not contribute to meeting other management objectives could benefit riparian/wetland vegetation and allow for restoration of sites not in functioning condition. Authorization of 108,234 AUM ' s for livestock grazing and allowing temporary nonrenewable grazing use could risk negative impacts to watershed functions. However, following BMP ' s for grazing or eliminating this use from areas not meeting objectives would minimize the negative effects and could improve fish and aquatic habitats. Existing exclosures have maximized riparian improvement and recovery rates, so maintenance of the exclosures would be beneficial. Spring function improvement would occur but would be limited because of the requirement to supply livestock water. Limiting new livestock water developments in playas would protect the habitats of the aquatic species that depend on the natural conditions. In current consultation, the grazing program has been determined to have an Adverse Effect on Warner Suckers and their habitats. No change is proposed to the current management so no change in effect determination is proposed. Because Hutton Spring is fenced from federal land and grazing is excluded on Foskett Spring, the grazing program is determined to have no effect on these species or their habitat.

The SMA goals and actions would increase the acreage of areas under special management. Areas in special management would be at a lower risk of damage to watershed function than areas under multiple use management. In areas outside of SMAs, the amount of use, such as grazing or recreation, would increase the risk of compaction and degradation of vegetation or soil condition. Use restriction would create a decreased risk for negative impacts to watershed function. Because of the limited area designated in SMAs and their distance from listed fish habitats, the SMA program will have no effect to Warner suckers, Foskett dace or Hutton chubs.

With the increased upper limit of 640,000 acres burned under prescription annually and the possible designation of areas for wildland fire use, there is potential for the temporary loss of riparian/wetland vegetation. Depending on where the fires occur and the condition of the habitat prior to burning, the long term effect could be positive or negative. Prescribed fires could be designed to mitigate or eliminate losses, and nonfunctioning riparian/wetland areas could be identified prior to the designation of new wildland fire use areas. Improving ecological conditions and restoration in the uplands after a prescribed or wildland fire would have the same beneficial impacts on riparian/wetland habitat by maximizing vegetative production, and would protect upland function and contribute to the continued health of the watershed. Minimum standards for ecosystem health would be followed and seed mixes would not be limited to native perennial species only. With the increase of fuel treatment there should be a decrease in wildland fire suppression over the long term. Improvement to the watershed resource from prescribed fire is key to long-term improvement of listed fish critical habitat and recovery. Management goals in the proposed action will benefit Warner suckers. Effects to Foskett dace and Hutton chub could not be measured unless spring flows are improved, an unlikely event.

In wildland fire management, emergency fire rehabilitation would continue to occur to meet resource

objectives and rehabilitate areas not in functioning condition. Riparian/wetland areas in proper functioning condition would recover more rapidly than areas not in proper functioning condition, and impacts would be short term. Negative impacts could occur with fire suppression and mechanical treatments due to increased compaction. Due to wildland fire control efforts an adverse effect is expected to Warner sucker habitats, however, these effects should be short term and rehabilitation work will target negative effects to offset impacts. No effect is expected on Foskett dace and Hutton chub habitats.

Recreation management goals and actions focus on maintaining and developing recreational uses. The proposed alternative would have a large percentage of the planning area open to OHV use and would have a greater risk of negatively impacting watershed function. Restricting OHV use in portions of the planning area could benefit some fish and aquatic habitat or prevent problems from occurring in the future, but none of these areas are associated with listed fish habitats. Managing motorized vehicles with more of an emphasis on the limited OHV use designations and restricting organized OHV events to existing roads and trails would benefit riparian/wetland vegetation. Overall, the recreation program will have adverse effects to Warner sucker habitats as the program expands. The effects come from use that is not controlled by federal authorization however. Permitted actions, guided activities and organized events, will have no effect as these actions can be regulated and controlled and species effects mitigated or eliminated. Due to the isolated nature of their habitats, no effect is expected to Foskett dace or Hutton chub habitats.

Managing VRM Class I (WSA 's) and Class II (Twelvemile Creek WSR) areas could constrain some management actions beneficial to fish and aquatic habitats, such as instream structures and watershed level vegetation management, especially juniper treatments. Overall no effect is expected to listed fish.

Effects of energy and mineral exploration, location, development, and production in riparian/wetland habitats could vary from small scale to major impacts if the exploration required road development and other disturbance. Although all practical measures to maintain or restore riparian/wetland habitat are required of all mining operations, impacts to these resources would continue to occur in the form of localized surface disturbance over the short term. The effects would be similar for oil and gas leasing, geothermal energy, and solid mineral material disposal. The energy and minerals management goals and actions decrease the amount of land open to mining from the current level. This would decrease the risk of compaction and degradation of vegetation or soil condition, but would not eliminate it entirely. The proposed alternative would have a risk for negative impacts to watershed function and possible direct effect to listed fish habitat by access development or extraction activities. Most impacts could be mitigated but not eliminated so this resource could have an adverse effect to Warner suckers and Foskett dace. One of the greatest threats to Foskett dace from a federal action would be the permitting the development of geothermal resources and a potential effect to Foskett springs flow and water quality.

The lands and realty management goals and actions focus on maintaining current resource conditions and use. Land adjustments would acquire land in good watershed condition and improve overall watershed function. New rights-of-way for road building and utility corridors would increase the risk of

compaction and degradation of vegetation or soil condition. There would be an increase in areas where rights-of-way are excluded. This alternative would have a greater possibility of improving rather than degrading watershed function. Limiting rights-of-way to designated corridors would minimize additional impacts to fish and aquatic habitats. Access acquisition could be beneficial if it facilitated management of fish and aquatic habitats; however, if new roads are constructed, increased sediment and runoff could result. Use of BMP's would minimize these effects. Acquisition of high value resource lands, including riparian/wetland habitat, would be beneficial to fish and aquatic habitats. Overall, management of the lands and realty resource is not likely to adversely effect listed fish and in some instances would have beneficial impacts.

Roads and transportation management goals and actions focus on protecting resource values. Closing roads no longer needed or those causing resource damage would be considered on a case-by-case basis. BMP's would be used for new road construction and maintenance. The proposed action would have a risk for negative impacts to watershed function, but this would decrease with BMP implementation. Additional road closures could improve fish and aquatic habitats if they reduce runoff and erosion. Road closures and rehabilitation could restore flood plain functioning and reduce direct channel impingement. The removal of any roads within riparian conservation areas that are impacting the stream and/or riparian zone would improve riparian condition and function. Improving riparian condition and function would be beneficial to listed fish either at the watershed scale, or directly if the road closure resulted in immediate restoration of stream function or water quality improvement.

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Chapter II Bald eagle (*Haliaeetus leucocephalus*)

Consultations Regarding the Bald Eagle In the Lakeview Resource Area

Informal Consultation for Animal Damage Control was proposed by USDA-APHIS in Southwestern Oregon on May 13, 1994 for the Environmental Assessment Wildlife Damage Management in the Roseburg ADC District in Southwestern Oregon. Consultation was completed with the U.S. Fish and Wildlife Service, Portland Field Station, USFWS Reference 1-7-94-I-296.

ESA Federal Listing History

The US Fish and Wildlife Service (USFWS) listed bald eagle populations south of the 40th parallel as endangered under the authority of the Endangered Species Protection Act (ESPA) in 1967 (32 FR 4001). Eleven years later in 1978, their status was re-examined and eagles resident in the lower 48 states were separated into areas with a threatened status and an endangered status. Populations in Michigan, Minnesota, Wisconsin, Oregon, and Washington were all assigned a threatened status (43 FR 6233). In 1995, bald eagles were once again reassessed and down-listed from endangered to threatened in all of

the lower 48 states (60 FR 36000).

Due to successful recovery efforts over the last 30 years, the USFWS has recently proposed to remove the bald eagle from the endangered species list altogether. The Service's de-listing proposal, which was published in the Federal Register on July 6, 1999, has yet to occur. If the bald eagle is de-listed in the future, the ESA requires the USFWS to monitor their population status for a period of five years after de-listing. Subsequent to de-listing, detection of a downward population trend would be reason for the USFWS to invoke an emergency re-listing of the species under the authority of the ESA.

In terms of USFWS conservation and recovery planning efforts, bald eagles within the LRA occur in one of five established recovery regions in the United States, and are currently addressed within the *Pacific Region Bald Eagle Recovery Plan* (USFWS 1986). Table 4 provides some specifics from the recovery plan concerning management of land uses and breeding population targets applicable to the Lakeview RMP.

General Life History/Distribution

Population dynamics for bald eagles throughout their North American range

In 1782, an estimated 100,000 nesting birds lived in the continental United States, excluding Alaska. By 1963, only 417 pairs were found in the lower 48 states. Over the past 30 years, the bald eagle population has nearly doubled every 7 to 8 years. With annual spending exceeding \$1 million during the period 1985-1995, USFWS data show that in the lower 48 there were 4,712 nesting pairs in 1995, and 5,748 in 2000.

Beginning in the mid- to late-1800's, a decline in eagle populations was attributed to a drop in waterfowl and shorebird prey populations, direct killing, and habitat destruction. The Bald Eagle Protection Act of 1940 (16 U.S.C. 668) prohibited direct killing in most of the eagle's range except Alaska, where the state paid a bounty for killing eagles to protect the salmon fishery. In 1952, the exemption allowing Alaska's bounty was revoked.

Following World War II, the widespread use of the organochlorine pesticide DDT caused significant reproductive failure, leading to another sharp decline in eagle populations. DDE, the primary breakdown product of DDT, caused eggshells to be thin and to break easily. The EPA banned the use of DDT in the United States in 1973 (37 FR 13369). Pesticides used in recent times have not impacted bald eagle population levels (60 FR 36000), although illegal use of pesticides has resulted in mortality on western rangelands corresponding primarily with wintering areas.

Illegal shooting, collisions with automobiles and electrocutions from power poles and lines continue to be threats, although steps have been taken to stop mortality from these direct and indirect actions.

Bald eagle winter habitat requirements in the Pacific Recovery Area

According to Marshall et. al. (1996), bald eagles winter in every county within Oregon. The highest concentrations are found in local areas that support dependable food sources such as the Klamath Basin, Harney Basin, Snake River and Columbia Rivers. Table 5 shows mid-winter bald eagle counts in Oregon

and Recovery Zones 21 and 22, which includes the Lakeview RMP planning area.

According to the *Pacific Bald Eagle Recovery Plan* (1986), it is typical for wintering bald eagles to perch on a variety of forest substrates depending upon regional habitat types and stand structure. Perch proximity to a food source is described as probably the most important factor in determining roost site selection; they are invariably located near feeding areas. Although the stereotypical food source for bald eagles is anadromous fish, they are not the only important food source. Within Klamath Basin, for example, eagles forage extensively on suckers and waterfowl.

Most tree perches selected by eagles tend to be the highest sites available that offer a good panoramic view of the surrounding area. Although the context for much of the literature on bald eagle winter use is forest types, they will readily use other tree or treelike structure for perching including cottonwoods and tree-form willow. It has been reported that artificial perches may be important to wintering bald eagles where natural structure is lacking.

Habitat requirements differ for communal night roosting and diurnal (daytime) perching. Communal roosts are not only typically found near rich food sources, such as runs of anadromous fish or high concentrations of waterfowl, but where forest stands are uneven aged and exhibit at least a remnant old growth characteristics. Research in the Klamath Basin of Oregon showed that eagles used old growth as far as 15 km (about 8 2 miles) from their food source for communal night roosting.

Most communal winter roosts used by bald eagles within the recovery area have attributes that offer considerably more protection from the weather than diurnal habitat, thereby facilitating energy conservation and winter survival during severe cold. This is an important matter for the Lakeview RMP area because it is certainly a region which often sustains severe winter cold conditions (0 to -30 degrees F).

Isolation is described as an important feature of bald eagle wintering habitat. The nature of human activities (timing, duration, and intensity) will determine whether or not they rise to levels which cause eagles to vacate an area. For instance, automobile traffic appears to be one of the least disturbing activities because eagles apparently often become habituated to their presence on and near roads. The same cannot be said about other activities such as motor-boating which can cause eagles to depart from an area. Excessive human activity is thought to be the probable reason that some suitable, but yet unoccupied, wintering habitats are not being used by eagles.

Bald Eagle breeding habitats within the Pacific Recovery Area

According to the *Pacific Bald Eagle Recovery Plan*, most bald eagle nests in the Pacific Recovery Area are located in uneven-aged conifer stands near water bodies which support an adequate food supply; primarily fish and waterfowl. These are typical habitats found in western and south-central Oregon. Within the Lakeview RMP area, these habitats only occur in Warner valley and along the western edge of the RMP area near the Fremont National Forest boundary.

Specific Life History and Distribution of Bald Eagles within the Lakeview RMP area

Breeding Habitat

As of 2002, only one bald eagle nest (#811) has been documented on public land within the Lakeview RMP area. Two other nests exist directly adjacent to BLM lands, one on private land (#812) and one on National Forest land (#580). The Toolbox complex fires that burnt in the summer of 2002 had a dramatic effect on bald eagles nesting in the area. Nest #811 is in scattered ponderosa pine along a steep east facing rim (T29S, R15E, Sec. 25). This nest was destroyed in July by fire as well as two other nests on National Forest lands. Nest #811 had been unoccupied in 2001 and 2002, so no chicks were lost in the fire. Nests #812 is located on private lands in ponderosa pine along a riparian stringer (T29S, R14E, Sec. 5) and was unaffected by the fires. Nest #580 occurs in ponderosa pine on National Forest lands and is directly adjacent to BLM lands within the RMP area (T27S, R13E, Sec. 27). Of the nesting areas destroyed by fires, all have green trees that are adjacent to the nest trees destroyed by fire (Marcus 2002). It is suspected that eagles will remain in the area and build new nests in adjacent trees.

Most nesting within the Klamath and Lake county region occurs adjacent to good foraging areas. Since anadromous fish are absent from this area, good foraging areas are mostly where adequate numbers of waterfowl congregate or where there is an ample supply of medium to large fish. Nesting habitat is very limited within the RMP area. There are suitable nest trees in several areas, but many of these are located far from good foraging areas. Most nesting habitats occur on National Forest lands adjacent to the RMP area. Given the prey base in the RMP area and the surrounding forest lands, the available nesting habitat may be nearing its capacity. There are adequate nest trees within the RMP area, but the prey base is probably the limiting factor.

The average combined winter bald eagle census in Lakeview RMP area accounts for less than 2% of the total Oregon winter population, reported by Oregon Eagle Foundation to be about 600 birds and about 20% of the average population in recovery zones 21 and 22 (Table 5).

For bald eagle planning and assessment purposes, the Lakeview RMP falls within USFWS ' s Pacific recovery area. As such, BLM used the *Pacific Bald Eagle Recovery Plan* (1986) and the *Working Implementation Plan for Bald Eagle Recovery in Oregon and Washington* (1990) as primary information sources for determining which issues to consider in this Biological Assessment.

Winter Habitat Characteristics

Wintering populations migrate into southeast Oregon from breeding habitats located outside the RMP area as well as within the RMP area. Coniferous roosting habitat is confined to the forest fringe on the western edge of the RMP area. Four winter roost sites exist on National Forest lands adjacent to the RMP area. No known winter roost sites exist on BLM lands within the RMP area, however foraging does occur on some BLM lands.

Bald eagles use winter foraging areas around open water on major stream systems and impoundments. These include several of the large lakes and streams in Warner Valley, Chewaucan marsh, Abert lake, Rivers end reservoir, Paulina marsh, Summer lake, Silver lake, ZX Detention reservoir, Silver creek, Duncan reservoir and Fort Rock valley. Under severe winter cold conditions surface waters freeze and cause eagle dispersal into nearby open water where food sources such as waterfowl can be found.

Summary of Inventories and Surveys

General Winter Use Surveys

Mid-winter eagle counts were conducted by supporters of the Oregon Eagle Foundation every year since 1988. These inventories were conducted off state and federal highways as well as county and BLM roads. Wintering bald eagles use within the RMP area has increased greatly during that time. The average count during this time period was about 48 birds, with a low of 20 and a high of 83 (Table 5).

Statewide surveys of mid-winter bald eagle use in Oregon have been conducted since 1979. Surveys in recovery zones 21 and 22 have been steadily conducted since 1988. Based on Oregon Eagle Foundation, Inc. (2002) data, recovery zones 21 and 22 have been shown to support an average of about 250 bald eagles per year since 1988 (Table 2). These surveys have been conducted by using a variety of agencies and individuals throughout the state. The data acquired have been compiled, analyzed and redistributed to various government and wildlife management entities by Oregon Eagle Foundation, lead by Frank Isaacs and Bob Anthony, both of whom are associated with Oregon State University in Corvallis.

Communal Night Roost Surveys

Some systematic surveys were conducted by ODFW and the USFS for the purpose of locating communal night roosts in Lake County. There are four known communal night roosts adjacent to the RMP area, but there are no known roosts within the RMP area, however eagles using these roosts do spend time foraging on public lands within the RMP area. It is possible that there are roosting areas on public land that biologists have not yet detected.

Monitoring

The only planned monitoring efforts at this time within the RMP area are a continuation of the mid-winter trend counts and nest visits in cooperation with the Oregon Eagle Foundation to determine nest status and reproductive outcome. Periodic inventory flights may occur if funding is specifically earmarked for this purpose or if these inventories become necessary for conservation or recovery of the species.

Analysis of Effects

Table 6 summarizes the array of land use actions authorized under the Lakeview RMP and the ways in which they could impact bald eagles or their habitat. The table describes direct, indirect, and interrelated / interdependent impacts. The table summaries were used to arrive at the summary conclusion presented below and they help lead to the basis for the cumulative effects determination described below.

Cumulative Effects

Given the character of bald eagle winter habitat within the Lakeview RMP area and the land uses and avoidance measures foreseen, BLM does not believe there are any incremental adverse impacts associated with implementation of the Lakeview RMP.

There are no data available regarding the habitat conditions and trends on private lands supporting bald eagle winter use within the planning area and it is not possible to ascertain with any degree of certainty

what may reasonably be expected to occur on private lands in the future. Consequently, the cumulative effects of private and federal land use actions on bald eagle winter use over the next 20 years is unknown. Excluding uncontrollable natural events, BLM assumes that public lands are the only secure source of tree structure (coniferous or deciduous) to support ongoing winter use and potential future nesting use in Lake County.

There is only one nest site, that had been occupied by a breeding pair, identified on public land within the RMP area. This nest site was destroyed by fire in July 2002 and had been inactive for the last two years. The cause of inactivity is suspected to be from a lack of water and waterfowl resulting from drought conditions in Silver Lake. Other nesting habitat presently occurs nearby and we anticipate that the nest could be rebuilt at that location. No impacts to bald eagle production would occur on the RMP area.

Avoidance measures resulting from future consultation (when specific actions are proposed) are highly likely to be effective in meeting the continued conservation and recovery goals for bald eagles.

Conclusion

The proposed Lakeview Resource Management Plan is not likely to adversely affect bald eagle winter or breeding habitat in Oregon. Because the Lakeview RMP is a mid-scale planning document, there are no specific projects identified which may be interpreted as having significant direct, indirect, interrelated and interdependent, or cumulative adverse effects to bald eagles in the RMP area.

Moreover, the Lakeview RMP states under Appendix B - Planning Criteria that when specific authorizations in activity plans are proposed, BLM will comply fully with the Endangered Species Act. Through informal means and the consultation streamlining processes, BLM will keep lines of communication open with the USFWS so that any Section 7 issues that may have been unforeseen in the Lakeview RMP may be addressed in a timely manner.

Table 4

(a) USFWS Recovery Zone 21 (Harney Basin/ Warner Mtns.) Key Areas--from *Working Implementation Plan for Bald Eagle Recovery in Oregon and Washington* (USFWS 1990)

Names of Key Areas	Existing # of Breeding Territories	Target for Breeding Territories	Current Wintering Population (5yr Avg.)
Crump Lake	0	1	6

USFWS Recovery Zone 22 (Klamath basin.) Key Areas--from *Working Implementation Plan for Bald Eagle Recovery in Oregon and Washington* (USFWS 1990)

Names of Key Areas	Existing # of Breeding Territories	Target for Breeding Territories	Current Wintering Population
Goose Lake	6	2	23
Summer Lake / Winter Rim	2	2	4
Silver Lake / Paulina Marsh	3	3	11

(b) Recovery Plan Site-Specific Tasks--from page 125, *Working Implementation Plan for Bald Eagle Recovery in Oregon and Washington* (USFWS 1990)

1.3211	Prohibit logging of known nest trees, perch trees, and winter roost trees
1.3214	Develop contingency plans to protect nesting and winter habitat in emergencies, e.g. wildfires pre-attack or prevention planning
1.3215	Preserve snags in eagle use areas
1.332	Exclude logging construction, habitat improvements, and other activities during critical periods of eagle use
1.333	Prohibit building construction near key bald eagle nesting and wintering habitats
4.11	Reduce bald eagle mortality associated with shooting and trapping
4.121	Restrict use of poisons detrimental to eagles in predator and rodent control programs within important bald eagle nesting and winter habitat

Table 5 **1988 to 2002 Midwinter bald eagle counts**
Lakeview RMP area, recovery Zone 21, and recovery Zone 22
Source: Oregon Eagle Foundation (2002)

Year	Lakeview RMP Area Count	Total Recovery Zone 21 Count	Total Recovery Zone 22 Count
1988	24	41	115
1989	20	14	157
1990	40	34	307
1991	59	50	188
1992	56	35	139
1993	83	59	174
1994	77	39	155
1995	44	30	151
1996	49	24	206
1997	49	48	205
1998	61	60	348
1999	48	33	254
2000	29	46	163
2001	58	68	165
2002	29	67	271
Average	48	43	200
Standard Deviation	18.3	15.7	66.6
Maximum count	83	68	348
Minimum count	20	14	115

Table 6. Analysis of Effects of Land Use Allocations Identified in the Lakeview RMP on Bald Eagles.			
Land Use Practice or Activity	Potential Effects on Bald Eagles and Their Habitats	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
Plant Communities Shrub Steppe	Restoration and enhancement of natural and desirable shrub steppe communities to promote healthy functioning systems will have moderate positive effects to prey species and foraging habitats.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species are impacted.	NLAA because sagebrush steppe habitats are to be managed to meet Standards for Rangeland Health which support a variety of habitats and animals. This provision promotes the general support of a variety of prey items for bald eagles.
Plant Communities Riparian Wetland Vegetation	Management of riparian and wetland areas to improve riparian vegetation, habitat diversity, and watershed function will promote healthy populations of prey species as well as proper riparian tree structure used by eagles for nesting and perching.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species are impacted.	NLAA because of riparian and wetland habitats are to be managed to meet Standards for Rangeland Health which support a variety of habitats and animals. This provision promotes the general support of a variety of prey items for bald eagles.
Plant Communities Forest and Woodlands	Loss of mature growth and uneven aged character of forest habitat used by bald eagles; disruption of habitat security due to administrative activities or forest health mgt. prescriptions.	Forest management would only occur to maintain or promote forest health and meet wildlife habitat needs. Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species are impacted	NLAA because all forest management practices will be required to meet the needs of listed wildlife species prior to any other considerations. Consultation with the US Fish and Wildlife Service will be required before any actions are undertaken if those actions result in impacts to bald eagles.
Special Status Plants	No effects anticipated	No effects anticipated	No Effect.
Soils	No effects anticipated	No effects anticipated	No Effect.
Water Resources and Watershed Health	Attainment of water quality standards would contribute towards improving riparian habitat conditions. Attainment	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species are impacted.	NLAA because riparian habitat objectives focus on improving riparian conditions and water quality. Improved watershed health emphasizes the need for mature and complex riparian overstories

Table 6. Analysis of Effects of Land Use Allocations Identified in the Lakeview RMP on Bald Eagles.

Land Use Practice or Activity	Potential Effects on Bald Eagles and Their Habitats	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
	of PFC would not necessarily meet bald eagle nesting or wintering habitat characteristics because it is a measure of physical function, not biological function.		preferred by bald eagles. These goals will incorporate issues of site potential of individual sites because they vary.
Fish and Aquatic Habitats	Where fishery objectives overlap with bald eagle use, they generally compliment one another by promoting mature habitat structure and the presence of a healthy community of aquatic organisms, thereby promoting the presence of a healthy forage base.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species are impacted.	NLAA because fishery habitat objectives for activity plans that overlap with bald eagle winter range will include goals which emphasize the need for mature and complex riparian overstories preferred by bald eagles.
Wildlife and Wildlife Habitat	Managing upland habitats to meet the specific needs of both game and non-game species will have beneficial effects for bald eagles and the habitats of their prey species.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species are impacted.	NLAA - Beneficial effect by improving wildlife habitat conditions through resource management activities. All wildlife habitat improvements will be designed to meet the needs of special status species.
Special Status Animal Species	Management of Special Status Species habitat is directed to meet the needs of all special status animals including bald eagles.	The resource goals and management prescriptions associated with this resource directly relate to improving special status species habitats and in themselves consider the bald eagles.	NLAA - Beneficial effect by improving special status species habitat conditions through resource management activities. All wildlife habitat improvements will be designed to meet the needs of special status species.
Livestock Grazing / Wild Horses	Impacts limited to areas where livestock grazing would compete with prey base habitat.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species are impacted.	NLAA because sagebrush steppe habitats are to be managed to meet Standards for Rangeland Health which support a variety of habitats and animals. This provision promotes the general support of a variety of prey items for bald eagles.

Table 6. Analysis of Effects of Land Use Allocations Identified in the Lakeview RMP on Bald Eagles.

Land Use Practice or Activity	Potential Effects on Bald Eagles and Their Habitats	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
Special Management Areas	Where special management area objectives overlap with bald eagle use, they generally compliment one another by promoting healthy, natural habitat characteristics, some patterns and levels of public use may potentially threaten bald eagle security.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species will be impacted.	NLAA because special area management promotes the attainment of natural systems that support healthy and self sustaining plant/animal communities.
Cultural & Paleontological Resources	No effects anticipated	No effects anticipated	No Effect.
Human Uses and Values	No effects anticipated	No effects anticipated	No Effect.
Air Quality	No effects anticipated	No effects anticipated	No Effect.
Fire Management	Direct loss of roost and nest sites for the purpose of protecting human safety.	Identify known sensitive sites in Fire Management Plans and supply resource advisors for fires near sensitive sites.	NLAA because potential habitats will be identified in fire management plans so that steps can be taken to avoid losses resulting from wildfires. NLAA because proposals for the pro-active reintroduction of fire into forest habitats used by bald eagles will require consultation with the US Fish and Wildlife Service prior to any ignitions.
Recreation	Development of recreational facilities or promotion of outdoor activities that threaten habitat security may result in adverse impacts to bald eagle use areas.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species will be impacted.	NLAA because recreation management practices within bald eagle winter use areas will incorporate habitat structure and security matters so that impacts may be avoided or greatly reduced. May effect determinations will result in consultation with the US Fish and Wildlife Service before any

Table 6. Analysis of Effects of Land Use Allocations Identified in the Lakeview RMP on Bald Eagles.

Land Use Practice or Activity	Potential Effects on Bald Eagles and Their Habitats	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
			actions are taken.
Off Highway Vehicle Use	Development of recreational facilities or promotion of outdoor activities that threaten habitat security may result in adverse impacts to bald eagle use area.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species will be impacted.	NLAA because disruptions associated with off highway vehicle use will be promptly curtailed or eliminated through federal register notices on a case-by-case basis. When such action is necessary to protect bald eagle habitat, the US Fish and Wildlife Service will be consulted regarding the extent and nature of the required avoidance.
Visual Resources	No effects anticipated	No effects anticipated	No Effect.
Energy and Minerals Resources	Direct losses of winter roost sites due to surface disturbances; disruption of security due to noise and human activity. Poisoning of eagles from ingestion of prey that have been contaminated from intake of chemicals used in exploration or development	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species will be impacted.	NLAA because adjustments in the location, timing, and duration of energy/minerals activities will be required when they would likely interfere with bald eagle security. NLAA due to the fact that handling, storage, disposal etc of hazardous materials will conform to Oregon Department of Environmental Quality standards.
Lands and Realty	Seasonal disturbances from the operation of equipment; sale or exchange of properties with known values as bald eagle habitat.	Seasonal restrictions outlined in the Recovery Plan for Pacific Bald Eagle will be followed.	NLAA because all realty actions which may effect bald eagle habitat will require consultation with the U.S. Fish and Wildlife Service. Potential disturbances will not be allowed during the recommended seasonal restriction periods.
Roads and Transportation	Disturbance from passing vehicles near nesting / roosting sites and from eagle vehicle collisions.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species will be impacted. Seasonal restrictions outlined in the Recovery Plan for Pacific Bald Eagle will be followed.	NLAA due to eagles getting habituated to roads and vehicle traffic. Occasional eagle vehicle collisions occur when carrion is nearby, but much of this on located along state highways and is incidental. Seasonal restrictions will be implemented if necessary to protect nest / roost

Table 6. Analysis of Effects of Land Use Allocations Identified in the Lakeview RMP on Bald Eagles.			
Land Use Practice or Activity	Potential Effects on Bald Eagles and Their Habitats	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
			sites from disturbance.

Effects Narrative For Bald Eagles

The shrub steppe management goals and actions focus on restoring and maintaining natural values while providing forage production. Restoration of degraded conditions would occur on a watershed level. This would move upland watershed vegetation communities toward potential natural condition (PNC). Vegetation communities in PNC could maintain and improve upland watershed condition. Improved watershed conditions in shrub steppe would translate to improved habitat conditions for both upland and wetland bald eagle prey species.

The riparian and wetland vegetation management goals and actions focus on identification and development of riparian management objectives. Restoration would be on a case-by-case basis. Restoration would move watersheds toward achieving the desired range of conditions. Removing roads, which negatively impact streams within riparian conservation area, would allow full development of floodplains and reduce sediment loads improving watershed condition. As watershed conditions improve, riparian hardwoods and forest types will continue to improve providing additional habitat for bald eagle nesting and roosting. Reduced sediment loads will increase prey availability in larger bodies of water.

Management of western juniper, old growth, and snags, would benefit bald eagle habitat. The western juniper woodlands management goals and actions focus on protection of resource values. Proposed management would move juniper ecosystems toward potential natural conditions. The implementation of harvest BMP's would protect watershed functions. Juniper management would improve ground cover and benefit prey species habitats as runoff and erosion were reduced and understory grasses and shrubs returned. Management of ponderosa pine forests would only occur to maintain or promote forest health and meet wildlife habitat needs and objectives.

Managing special status plant habitats based on desired range of conditions and landscape-level effects would stabilize improvement trends and allow for better long-term habitat conditions over emphasizing management based on individual species. The special status plant species management goals and actions focus on restoration and enhancement and create new Special Management Areas (SMA's). SMA management would coincide with ecological or watershed goals and thus would have a low risk for negative effects on watershed function. Because of the limited size of special status plant sites, improvement in special status plant habitats are not expected to effect bald eagles.

The water resources and watershed health management goals and actions focus on reducing current impacts and maintaining good watershed condition. Reducing impacts and maintaining current conditions would help restore watershed function due to implementation of BMP's, minimum standards for upland grazing, and evaluation of near stream grazing. Management goals that are designed to restore water quality and improve riparian conditions would result in positive effects to bald eagles. Setting objectives based on site potential would be beneficial to eagles by focusing restoration efforts on sites that could support nesting and roosting habitats. Designation and management of riparian conservation areas and establishing a desired range of conditions would also be beneficial to bald eagle habitat.

Managing upland habitats so the forage, water, cover, structure, and security necessary for game and non-game wildlife species would benefit bald eagles. Managing livestock forage production to support an

increase of 9,138 additional wildlife AUM ' s would have a minimal impact on bald eagles. The wildlife and special status animal species management sections focus on maintenance, restoration, or enhancement of ecosystems. Ecosystem management would support watershed function by moving vegetation and soil conditions closer to potential natural community. Consideration of non-game species habitats across most areas would result in additional positive effects to bald eagle habitats in a more positive way rather than just concentrating on game species only. Improving conditions for all wildlife should relate directly to bald eagle habitats and their prey species.

Grazing impacts on bald eagles would be limited as long as minimum standards for rangeland health were met. Implementing livestock grazing systems that promote the recovery or maintenance of riparian systems and wetlands to the desired range of conditions (based on site potential) would benefit bald eagle habitats. The potential for authorization of suspended nonuse and temporary nonrenewable grazing use could cause impacts to riparian/wetland vegetation; however, these uses would only be authorized if conflicts with other uses would not occur. The abandonment and rehabilitation of rangeland projects that do not contribute to meeting other management objectives could benefit riparian/wetland vegetation and allow for restoration of sites not in functioning condition. Authorization of 108,234 AUM ' s for livestock grazing and allowing temporary nonrenewable grazing use could risk negative impacts to watershed functions. However, following BMP ' s for grazing or eliminating this use from areas not meeting objectives would minimize the negative effects and could improve bald eagle habitats. Limiting new livestock water developments in playas would protect these wetland habitats and maintain conditions for waterfowl prey species.

The SMA goals and actions would increase the acreage of areas under special management. Areas in special management would be at a lower risk of damage to watershed function than areas under multiple use management and where these overlap with bald eagle habitat use, they generally compliment one another. Some SMAs could experience higher recreation use due to designation, which could impact bald eagle security if significant increases in recreation occur. It is anticipated that these area will not overlap with bald eagle use in the near future.

In wildland fire management, emergency fire rehabilitation would continue to occur to meet resource objectives and rehabilitate areas not in functioning condition. Areas in proper functioning condition would recover more rapidly than areas not in proper functioning condition, and impacts would be short term. Negative impacts could occur with fire suppression and mechanical treatments due to increased compaction and loss of snag habitat. These impacts would be minimized by addressing sensitive habitats in fire management plans and supplying resource advisors for fires near sensitive sites.

An increased upper limit of 640,000 acres burned under prescription annually and the possible designation of areas for wildland fire use would have minimal impacts to bald eagles or their habitats. Any proposed activity that could potentially impact bald eagles or their habitats would require consultation with the US Fish and Wildlife Service prior to ground disturbing activities. Depending on where the fires occur and the condition of the habitat prior to burning, the long-term effect could be positive or neutral. Prescribed fires could be designed to improve ecological conditions and restore uplands. This would have a beneficial impact on bald eagles and their prey species. Minimum standards for ecosystem health

would be followed and seed mixes would not be limited to native perennial species only. With the increase of fuel treatment there should be a decrease in wildland fire suppression over the long term.

Recreation management goals and actions focus on maintaining and developing recreational uses. The proposed alternative would have a large percentage of the planning area open to OHV use and would have a greater risk of negatively impacting the security of bald eagles. Currently this is not a problem due to the inaccessibility of most bald eagle use areas to OHVs. If disruptions occur in the future, OHV use would be curtailed or eliminated through federal register notices on a case-by-case basis. Much of these effects come from use that is not controlled by federal authorization. Permitted actions, guided activities and organized events, will have no effect as these actions can be regulated and controlled and species effects mitigated or eliminated.

Management of VRM Class I (WSA) and Class II (Twelvemile Creek WSR) areas could constrain some management actions beneficial to bald habitats, such as watershed level vegetation management, especially juniper treatments. Overall, managing visual resources will have little or no effects on bald eagles.

Effects of energy and mineral exploration, location, development, and production in bald eagle habitats could vary from small scale to major impacts if the exploration required road development and other disturbance. Although all practical measures to maintain or restore bald eagle habitat are required of all mining operations, impacts to these resources would continue to occur in the form of localized surface disturbance over the short term. The effects would vary from direct loss of habitat from surface operations to disruption and loss of security from noise and human activity. Poisoning of eagles through ingestion of prey contaminated from intake of chemicals used in exploration and development could occur. However, consultation with the US Fish and Wildlife service would be required on any project with potential effects to bald eagles.

The lands and realty management goals and actions focus on maintaining current resource conditions and use. Land adjustments would acquire land in good watershed condition or with special status species habitats and would improve overall availability of habitats for bald eagles. New rights-of-way for road building and utility corridors would increase the risk of habitat loss. Limiting rights-of-way to designated corridors would minimize additional impacts to bald eagle habitats. Access acquisition could be beneficial if it facilitated management of bald eagle habitats. Use of BMP's would minimize these effects. Acquisition of high value resource lands, including sensitive species habitats, would be beneficial to bald eagles. Overall, management of the lands and realty resource is not likely to adversely effect bald eagles and in some instances would have beneficial impacts.

Roads and transportation management goals and actions focus on protecting resource values. Closing roads no longer needed or those causing disturbance to bald eagle nesting or roosting areas would be considered on a case-by-case basis. BMP's would be used for new road construction and maintenance. The proposed action would have a risk for negative impacts to watershed function, but this would decrease with BMP implementation. Seasonal restrictions outlined in the Pacific Bald Eagle Recovery Plan would be used where necessary to reduce disturbance during critical periods.

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Chapter III Canada Lynx (*Lynx canadensis*)

Consultation Regarding the Lynx

No previous consultation has occurred.

General Life History and Distribution

Canada lynx habitat extends across the North American continent. Eastern Oregon lies within the Northern Rocky Mountains Geographic Area, Middle Rocky Mountain Province and Blue Mountains Section of lynx distribution. Here, typical preferred lynx habitat consists of large (>1800 square km), contiguous areas of boreal, sub-boreal, and western montane forest types. Subalpine fir habitat types where lodgepole pine is a major seral species, generally between 1,250 - 2000 m, is considered preferred habitat. Moist grand fir and moist Douglas-fir habitat types where they are intermixed with subalpine fir habitat types, and aspen stands constitute secondary vegetation that may also contribute to lynx habitat. Dry forest and shrub-steppe communities do not provide summer or breeding habitat, but they do provide connectivity between adjacent mountain ranges and may be used some winters.

Intense crown fires occurred at long frequencies (100-300 years) in forested areas and created large openings that persisted for long intervals. As burned areas moved through successional stages, snowshoe hares begin to utilize the young hardwood or pine stands 15-30 years after fire. At lower elevations, more frequent fires (5-60 years) restricted juniper to shallow rocky soils and created grassy openings in shrub-steppe communities important to alternate prey species such as black-tailed jackrabbits, ground squirrels and sage grouse. Where forested communities are in close proximity to shrub-steppe rangelands there are opportunities for wandering lynx to utilize atypical habitats during winters when snowshoe hare numbers are low, or during years alternate prey numbers are high.

Important habitat components for lynx during summer include dense forest blow-downs used by females with kittens. Ridges and riparian areas generally serve as important travel routes through home ranges. Moderate, rolling topography with young stands of regenerating hardwoods and pines are primary snowshoe hare foraging habitat and, therefore, lynx hunting habitat. Large openings within forested communities are avoided although the ecotone maybe extensively used by hunting lynx. Low elevation, shrub-steppe rangelands serve as travel routes between core populations of lynx and those populations in isolated mountain ranges. Atypical habitat maybe important to maintain genetic diversity within these lynx populations, and to repopulate habitat where they have been extirpated.

Specific Life History and Distribution of Canada lynx within the Lakeview RMP area

Local Distribution

Records or sightings of Canada lynx on lands within the RMP area are rare at best. Two records exist within the Oregon Natural Heritage Program database for Lake County (ONHP 2002). One of these records is from a museum specimen collected in 1896 and the other is from an individual sighting near the Deschutes National Forest boundary in 1992. Other records exist in the neighboring Klamath and Harney counties. Most of these records are from the turn of the century, however, there is one recent record from Harney County in 1993 (Verts and Carraway 1998). Given the frequency of sightings, lynx are rare at best within the RMP area and are probably only occasional visitors to the area.

Summer Habitat

Within the RMP area, the BLM administers approximately 14,000 acres of dry ponderosa pine forest habitats and 1,200 acres of mixed conifer habitats. Most of these are located on the western edge of the RMP area adjacent to the Fremont National Forest. Most BLM managed rangeland is covered with Mountain and Wyoming big sagebrush-steppe plant communities. Much of the forest and some of the sagebrush-steppe communities experienced a major invasion of western juniper during the last 100-150 years. Both the forest and shrub-steppe habitats within the RMP area do not provide any of the typical habitat features utilized by lynx during summer months and probably constitutes a natural barrier to lynx movement from core habitat to another. Currently there is no confirmed lynx reproduction in Oregon. Summer lynx habitats within the RMP area are marginal and atypical at best.

Winter Habitat

Forested BLM habitats and shrub-steppe habitats adjacent to the Fremont National Forest may serve as marginal winter habitats for lynx moving to lower elevations in pursuit of alternate prey species such as black-tailed jackrabbits. Snowshoe hares have never been recorded in the RMP area, but do occur

directly adjacent to the RMP area to the west. Some burned areas could eventually provide habitat suitable for preferred prey species in 15-30 years, when small pines reach the necessary size. These tracts are very small in size, but are connected to larger tracts on National Forest and Private lands.

Should lynx travel into lower elevation shrub-steppe communities during winter, cottontail rabbits and black-tailed jackrabbits could provide alternate prey. Sage grouse could also be available as alternate prey in some areas at lower elevations during winter. Virtually all BLM and private lands at lower elevations are subjected to livestock grazing at moderate levels (30-50% utilization) and support moderate numbers of atypical prey species. There are, however, no mountain ranges with typical breeding or summer habitat within the RMP area or to the north, south, or east of the RMP area. Lynx could cross into the area from the Cascade mountain range located to the west, but the expanse of sagebrush-steppe within the RMP area and to the east is probably a dispersal barrier.

Summary of Inventories and Surveys

No formal surveys have been conducted for lynx or primary prey species on BLM LRA lands. There are no records of snowshoe hare being present within the RMP area. Red squirrels, forest grouse and cottontail rabbits are seen on occasion in forested communities. Forest habitat potentially available to lynx has not been inventoried since the 1974.

Monitoring

LRA BLM does not plan to pursue any systematic lynx surveys in the near future. Survey dollars are scarce and the probability of detecting wandering lynx in dispersal/exploratory habitat is extremely low. BLM LRA would fully cooperate with any survey or monitoring effort by adjoining Forests or the Oregon Department of Fish and Game, subject to available funding and personnel.

Analysis of Affects of BLM Actions

Table 7 summarizes the array of land use actions authorized under the Lakeview RMP and the ways in which they could affect lynx habitat. Due to the lack of lynx observations within the planning area boundary, BLM believes that detailed analysis of potential affects from implementing the general guidance in the Lakeview RMP is not warranted. Specific management actions could be proposed within the framework of the Proposed Lakeview RMP that may affect potential lynx dispersal/exploratory habitat. Each action that may affect lynx or lynx habitat will result in conference or consultation with USFWS prior to project initiation.

The Lakeview RMP states that forest and woodlands would be managed to maintain or restore forest health and meet wildlife habitat needs. Timber harvest could be used as a tool in conjunction with pre-commercial thinning, prescribed fire and other techniques to achieve site specific objectives of restoring and maintaining forest health, biodiversity and wildlife habitat. Timber harvest would be permitted if identified values could be protected or enhanced. Each project affecting lynx or lynx habitat would be subject to consultation with USFWS, but because BLM lands have value only as potential dispersal/exploratory habitat there is no way to determine which project treatments may affect lynx except by individual and cumulative analysis in relation to adjoining BLM and Forest Service lands. This analysis will be periodically updated as new inventories, studies, sightings, techniques and policies develop during

the life of this plan.

The Lakeview RMP authorizes livestock grazing on virtually all forested and adjoining rangelands potentially available to lynx. The draft *Canada Lynx Conservation Assessment and Strategy* states that “Grazing use levels, by livestock and/or wild ungulates, may increase competition for forage resources with lynx prey. By changing native plant communities, such as aspen and high elevation riparian willow, grazing can degrade snowshoe hare habitat”. BLM grazing prescriptions are designed to maintain healthy rangeland and forest conditions. Most of these areas have been inventoried for rangeland health within the last few years, establishing baseline conditions. Under current and proposed management prescriptions prior to the next grazing season, BLM would modify grazing practices that lead to unsatisfactory rangeland conditions.

In all alternatives, BLM will coordinate with Fremont and Deschutes National Forests as they develop Lynx Analysis Unit boundaries and aid subsequent inventories, monitoring and management activities, as appropriate. BLM will consult with USFWS on any proposed action that may affect lynx or lynx habitat.

Cumulative Effects

Combinations of proposed actions which would result in cumulative adverse effects on Canada lynx within the Lakeview RMP area are unlikely

Conclusion

The Proposed Lakeview RMP is not likely to adversely affect Canada lynx. There are no specifically identified land management proposals addressed in the Lakeview RMP that would have significant direct, indirect or cumulative adverse impacts to lynx on public land. Moreover, the document states explicitly and repeatedly that when specific land use actions in activity plans are proposed, BLM will: (1) determine if the actions may affect listed species and (2) promptly initiate consultation with USFWS to avoid or mitigate impacts when a may-affect determination is made. BLM intends to keep lines of communication open through informal means with the Service so that any issues unforeseen in the Lakeview RMP may be addressed as expeditiously as possible.

Table 7. Analysis of Effects of Land Use Allocations Identified in the Lakeview RMP on Canada Lynx.

Land Use Practice or Activity	Potential Effects on Canada Lynx and Their Habitats	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
Plant Communities Shrub Steppe	Restoration and enhancement of natural and desirable shrub steppe communities to promote healthy functioning systems will have moderate positive effects to prey species.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species are impacted.	NLAA because sagebrush steppe habitats are to be managed to meet Standards for Rangeland Health which support a variety of habitats and animals. This provision promotes the general support of a variety of prey items for lynx.
Plant Communities Riparian Wetland Vegetation	Management of riparian and wetland areas to improve riparian vegetation, habitat diversity, and watershed function will promote healthy populations of prey species.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species are impacted.	NLAA because of riparian and wetland habitats are to be managed to meet Standards for Rangeland Health which support a variety of habitats and animals. This provision promotes the general support of a variety of prey items for lynx.
Plant Communities Forest and Woodlands	Loss of mature growth and uneven aged character of forest habitat; prescribed burning of blow downs; disruption of habitat security due to administrative activities associated with timber sales or forest health mgt. prescriptions. Decreased prey numbers due to loss of hardwood or pine thickets and old growth stands.	Forest management would only occur to maintain or promote forest health and meet wildlife habitat needs. Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species are impacted.	NLAA because all forest management practices will be required to meet the needs of listed wildlife species prior to any other considerations. Consultation with the US Fish and Wildlife Service will be required before any actions are undertaken if those actions are likely to result in impacts to lynx.
Special Status Plants	No effects anticipated	No effects anticipated	No Effect.
Soils	No effects anticipated	No effects anticipated	No Effect.
Water Resources	Attainment of water quality	Projects will be reviewed on a case-by-	NLAA because riparian habitat objectives for

Table 7. Analysis of Effects of Land Use Allocations Identified in the Lakeview RMP on Canada Lynx.

Land Use Practice or Activity	Potential Effects on Canada Lynx and Their Habitats	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
and Watershed Health	standards and watershed health would improve habitats for lynx and their prey species. Improved riparian conditions may result in better travel corridors for lynx and higher numbers of some prey.	case basis. Coordination and consultation will be required if listed species are impacted.	activity plans that overlap with lynx habitat will include goals which emphasize the need for mature and continuous riparian vegetation preferred by lynx. These goals will incorporate issues of site potential of individual sites because they vary.
Fish and Aquatic Habitats	No effects anticipated	No effects anticipated	No Effect.
Wildlife and Wildlife Habitat	Managing upland habitats to meet the specific needs of both game and non-game species will have beneficial effects for lynx and the habitats of their prey species.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species are impacted.	NLAA - Beneficial effect by improving wildlife habitat conditions through resource management activities. All wildlife habitat improvements will be designed to meet the needs of special status species.
Special Status Animal Species	Management of Special Status Species habitat is directed to meet the needs of all special status animals including lynx.	The resource goals and management prescriptions associated with this resource directly relate to improving special status species habitats.	NLAA - Beneficial effect by improving special status species habitat conditions through resource management activities. All wildlife habitat improvements will be designed to meet the needs of special status species.
Livestock Grazing / Wild Horses	Livestock forage preference overlaps that of most lagomorphs and may reduce prey numbers. Livestock facilities including roads increases human activities in lynx habitat	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species are impacted.	NLAA because sagebrush steppe habitats are to be managed to meet Standards for Rangeland Health which support a variety of habitats and animals. This provision promotes the general support of a variety of prey items for lynx.
Special Management Areas	Where special management area objectives overlap with bald eagle use, they generally compliment one another by promoting healthy, natural habitat	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species will be impacted.	NLAA because special area management promotes the attainment of natural systems that support healthy and self sustaining plant/animal communities.

Table 7. Analysis of Effects of Land Use Allocations Identified in the Lakeview RMP on Canada Lynx.

Land Use Practice or Activity	Potential Effects on Canada Lynx and Their Habitats	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
	characteristics, some patterns and levels of public use may potentially threaten lynx security.		
Cultural & Paleontological Resources	No effects anticipated	No effects anticipated	No Effect.
Human Uses and Values	No effects anticipated	No effects anticipated	No Effect.
Air Quality	No effects anticipated	No effects anticipated	No Effect.
Fire Management	Potential habitat improvement projects for lynx; loss of habitat by fire.	Identify known sensitive sites in Fire Management Plans and supply resource advisors for fires near sensitive sites.	NLAA because known habitats will be identified in fire management plans so that steps can be taken to avoid losses resulting from wildfires. NLAA because in forested areas, proposals for prescribed fire that may have negative impacts on lynx habitats will require consultation with the US Fish and Wildlife Service prior to any ignitions. Rangeland prescribed fires will be evaluated to insure potential dispersal corridors are not disrupted with large openings.
Off Highway Vehicle Use	Development of recreational facilities or promotion of outdoor activities that threaten habitat security may result in adverse impacts to lynx use areas.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species will be impacted.	NLAA because disruptions associated with off highway vehicle use will be promptly curtailed or eliminated through federal register notices on a case-by-case basis. When such action is necessary to protect lynx or lynx habitat, the US Fish and Wildlife Service will be consulted regarding the extent and nature of the required avoidance or mitigation.

Table 7. Analysis of Effects of Land Use Allocations Identified in the Lakeview RMP on Canada Lynx.

Land Use Practice or Activity	Potential Effects on Canada Lynx and Their Habitats	Lakeview RMP Provisions for Avoidance or Mitigation of Effects	Effects Determination of Lakeview RMP Provisions
Visual Resources	No effects anticipated	No effects anticipated	No Effect.
Energy and Minerals Resources	Direct losses of hunting, travel or dispersal habitat due to surface disturbances; disruption of security due to noise and human activity. Decreased prey numbers due to loss of habitat or contaminated from intake of chemicals used in exploration or development	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species will be impacted.	NLAA because adjustments in the location, timing and duration of energy/minerals activities will be required when they would likely interfere with lynx security. NLAA because handling, storage, disposal etc of hazardous materials will conform to Oregon Department of Environmental Quality standards.
Lands and Realty	Seasonal disturbances from the operation of equipment; sale or exchange of properties with known values as lynx habitat.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species will be impacted.	NLAA because all realty actions which may effect lynx habitat will require consultation with the U.S. Fish and Wildlife Service.
Roads and Transportation	Disturbance from passing vehicles near habitats and from lynx vehicle collisions. Abandonment of habitats due to new road construction.	Projects will be reviewed on a case-by-case basis. Coordination and consultation will be required if listed species will be impacted.	NLAA due to lynx getting habituated to roads and vehicle traffic. If new road construction were to occur in known lynx habitat, consultation with the U.S. Fish and Wildlife Service would be required.

Effects Narrative for Canada Lynx

The shrub-steppe management goals and actions focus on restoring and maintaining natural values while providing forage production. Restoration of degraded conditions would occur on a watershed level. This would move upland watershed vegetation communities toward potential natural condition (PNC). Vegetation communities in PNC could maintain and improve upland watershed condition. Improved watershed conditions in shrub-steppe would translate to improved habitat conditions for both upland and wetland lynx prey species.

The riparian and wetland vegetation management goals and actions focus on identification and development of riparian management objectives. Restoration would be on a case-by-case basis. Restoration would move watersheds toward achieving the desired range of conditions. Removing roads, which negatively impact streams within riparian conservation area, would allow full development of floodplains and reduce sediment loads improving watershed condition. As watershed conditions improve, riparian hardwoods and forest types would continue to improve providing additional habitat for lynx. Improvements in riparian vegetation would increase prey base habitats for lynx.

Some types of management of ponderosa pine and western juniper, would benefit lynx habitat. The forest and woodlands management goals and actions focus on protection of resource values. Proposed management would move juniper ecosystems toward potential natural conditions. The implementation of harvest BMPs would protect watershed functions. Juniper management would improve ground cover and benefit prey species habitats as runoff and erosion were reduced and understory grasses and shrubs returned. Management of ponderosa pine forests would only occur to maintain or promote forest health and meet wildlife habitat needs and objectives.

The water resources and watershed health management goals and actions focus on reducing current impacts and maintaining good watershed condition. Reducing impacts and maintaining current conditions would help restore watershed function and would likely have positive impacts to lynx and their major prey species. This would be accomplished by implementation of BMPs, utilization of the Standards for Rangeland Health and evaluation of near stream grazing. Management goals that are designed to restore water quality and improve riparian conditions would result in positive effects to lynx. Designation and management of riparian conservation areas and establishing a desired range of conditions would also be beneficial to lynx habitat.

Managing upland habitats so the forage, water, cover, structure, and security necessary for game and non-game wildlife species would benefit lynx. Managing livestock forage production to support an increase of 9,138 additional wildlife AUMs would have a minimal impacts. The wildlife and special status animal species management sections focus on maintenance, restoration, or enhancement of ecosystems. Ecosystem management would support watershed function by moving vegetation and soil conditions closer to potential natural community. Consideration of non-game species habitats across most areas would result in additional positive effects to lynx habitats in a more positive way rather than just concentrating on game species only. Improving conditions for all wildlife should relate directly to lynx habitats and their prey species.

Livestock forage preferences overlap those of many lagomorphs and may reduce prey numbers if grazing is excessive. Grazing impacts on lynx would be minor as long as minimum Standards for Rangeland Health were met. The abandonment and rehabilitation of rangeland projects that do not contribute to meeting other management objectives could benefit upland as well as riparian/wetland vegetation and allow for restoration of sites not in functioning condition. Authorization of 108,234 AUM's for livestock grazing and allowing temporary nonrenewable grazing use could risk negative impacts to watershed functions. However, following BMPs for grazing or eliminating this use from areas not meeting objectives would minimize the negative effects and could improve lynx habitats.

The SMA goals and actions would increase the acreage of areas under special management. Areas in special management would be at a lower risk of damage to watershed function than areas under multiple use management and where SMAs overlap with lynx habitat use, they generally compliment one another. Although not expected, some SMAs could experience higher recreation use due to designation. If significant increases in recreation occur, lynx security could be impacted.

In wildland fire management, emergency fire rehabilitation would continue to occur to meet resource objectives and rehabilitate areas not in functioning condition. Areas in proper functioning condition would recover more rapidly than areas not in proper functioning condition, and impacts would be short term. Negative impacts could occur with fire suppression and mechanical treatments due to increased compaction and loss of cover. These impacts would be short term. Prey habitats would increase after reforestation of burned areas created dense patches of young trees that are preferred by some lagomorph species. Impacts would be minimized by addressing sensitive habitats in fire management plans and supplying resource advisors for fires near sensitive sites.

An increased upper limit of 640,000 acres burned under prescription annually and the possible designation of areas for wildland fire use would have minimal impacts to lynx or their habitats. Especially considering that we are not dealing with prime lynx habitats. Any proposed activity that could potentially impact lynx or their habitats would require consultation with the US Fish and Wildlife Service prior to ground disturbing activities. Depending on where the fires occur and the condition of the habitat prior to burning, the long-term effect could be positive or neutral. Prescribed fires could be designed to improve ecological conditions and restore uplands. This would have a beneficial impact on lynx and their prey species. Minimum standards for ecosystem health would be followed and seed mixes would not be limited to native perennial species only. With the increase of fuel treatment there should be a decrease in wildland fire suppression over the long term.

Recreation management goals and actions focus on maintaining and developing recreational uses. The proposed alternative would have a large percentage of the planning area open to OHV use and would have a greater risk of negatively impacting the security of lynx. If OHV activity effects lynx in the future, the use would be curtailed or eliminated through federal register notices on a case-by-case basis. Much of these effects come from use that is not controlled by federal authorization. Permitted actions, guided activities and organized events, would have no effects as these actions can be regulated and controlled and species effects mitigated or eliminated.

Management of VRM Class I (WSA) and Class II (Twelvemile Creek WSR) areas would have little or no effects on lynx.

Effects of energy and mineral exploration, location, development, and production in lynx habitats could vary from small scale to major impacts if the exploration required road development and other disturbance. Although all practical measures to maintain or restore lynx habitat are required of all mining operations, impacts to these resources would continue to occur in the form of localized surface disturbance over the short term. The effects would vary from direct loss of habitat from surface operations to disruption and loss of security from noise and human activity. However, consultation with the US Fish and Wildlife service would be required on any project with potential effects to lynx.

The lands and realty management goals and actions focus on maintaining current resource conditions and use. Land adjustments would acquire land in good watershed condition or with special status species habitats and would improve overall availability of habitats for lynx. New rights-of-way for road building and utility corridors would increase the risk of habitat loss and increase the disturbance factor. Acquisition of high value resource lands, including sensitive species habitats, would be beneficial to lynx. Overall, management of the lands and realty resource is not likely to adversely effect lynx and in some instances would have beneficial impacts.

Roads and transportation management goals and actions focus on protecting resource values. Closing roads no longer needed or those causing disturbance in lynx habitat areas would be considered on a case-by-case basis. BMP's would be used for new road construction and maintenance. The proposed action would have a risk for negative impacts to watershed function, but this would decrease with BMP implementation. Seasonal restrictions could be used where necessary to reduce disturbance during critical periods.

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Chapter IV Columbia Spotted Frog (*Rana luteiventris*)

Endangered Species Act Candidate

The Columbia spotted frog is found from Alaska south through British Columbia, eastern Washington, Idaho, eastern Oregon, western Montana, and northwestern Wyoming. Disjunct populations occur in SE Oregon, SW Idaho, Nevada, and Utah. The species can be subdivided into genetically differentiated groups, including the Rocky Mountain, the Wasatch Range, and Great Basin (Green et al. 1996). Based on samples collected from several subpopulations, Green (1997) determined that Columbia spotted frogs found in the Lakeview RMP planning area belong to the Great Basin population. Due to extensive impact on riparian habitats primarily from livestock grazing, conversion of wetland habitats to irrigated pasture, and dewatering of river areas by irrigation practices, the USFWS found that listing the Great Basin population of the Columbia spotted frog (Nevada, southern Idaho, and southeastern Oregon) was warranted, but precluded. Candidates are those plant and animal species for which the USFWS has sufficient information on biological status to propose them as endangered or threatened under the Endangered Species Act. Environmental planning efforts and resource management actions that alleviate threats could remove the need to list these Candidate taxa.

Spotted Frog Distribution and Life History within the Lakeview RMP area

Distribution

Spotted frogs are associated with riparian habitat in portions of the analysis area. The known distribution within the plan area is in Parsnip Creek in two different BLM reaches separated by a privately managed reach. Two separate survey efforts were conducted. The first by St. John (1994) found seven specimens in one small section of Parsnip Creek above the private reach known as the Moffitt field. St. John also surveyed Camas, Drake, Snyder, Willow and Bridge Creeks, and the Chewaucan River. No spotted frogs were located although adequate habitats were noted in several locations in the survey.

Angele (2000) and Clark completed the second survey. No spotted frogs were located, even in the known sites of Parsnip Creek. They made multiple visits thru the summer to several of the more promising habitats. They surveyed Parsnip, Drake, Willow, Fifteenmile, Long Canyon, Clover, Buck, Miners Draw, Snyder and Horse Creeks. Springs that were surveyed included: Antelope, Indian, Juniper, Finnucan, Noonan, Priday, Desert Lake, Oboholte, Irish and White Rock. Wetland edges of Duncan and ZX Detention Reservoirs and Warner Wetlands were surveyed as were the ponds and springs of Hill Camp and Coyote Hills. Suitable habitats were located on several sites.

Crews completing stream surveys and other resource work were requested to note any observations of large ranids, with only one observation in the known location in lower Parsnip Creek in 2002. Frogs have been consistently noted in Parsnip Creek in the two locations, one site above and one site below the private Moffitt field.

Life History

The Columbia spotted frog inhabits wetlands, ponds, and low gradient streams with permanent water.

Adults tend to be found in oxbows or pools with a sand substrate, submerged vegetation, and algal mats. They require a high water table and therefore are associated with willow or sedge/rush riparian communities rather than sagebrush (Munger *et al.* 1996). Breeding sites generally have quiet water with muddy substrates, emergent vegetation, and associated springs. After breeding, frogs may disperse along watercourses to occupy areas some distance away.

Spotted frogs become active in late February or early March, with egg-laying occurring from April to June, depending on elevation (Nussbaum *et al.* 1983). No egg masses have been discovered in the RMP area. Hatching time varies between 72 and 400 hours after egg deposition, depending on water temperature. Newly metamorphosed frogs appear in late summer and may move from breeding sites to wetlands or areas of shallower water. Although little is known of over-wintering requirements for Columbia spotted frogs, evidence suggests that frogs burrow in soft substrates in or near permanent springs.

Specific Limiting Factors

The primary threat to Columbia spotted frogs is through loss of habitat, whether from water diversions, long-term effects of grazing, mining operations, or other habitat modifications that reduce the water table or pool depths. Even in heavily grazed areas, frogs will persist if substantial bodies of water are present to provide predictable aquatic and wetland habitat throughout summer and sufficient depth for non-freezing hibernacula in winter.

Another significant threat to frog survival is the introduction of exotic fish and bullfrogs, which may compete with or prey upon spotted frogs. Bullfrogs have not become well established in the Lakeview Resource Area. However, bullfrogs have been observed in limited sites near Summer Lake and in the Goose Lake valley. Spotted frogs are absent from reservoirs containing smallmouth bass, although frogs do coexist in streams and ponds with native redband or hatchery rainbow trout.

Monitoring

The BLM will continue to conduct both specific surveys and spot checks for spotted frogs in the course of other fieldwork. Because of the intermittent observations of frogs in even known occupied habitats, we have not ruled out the possibility of spotted frog presence in any suitable habitat. Habitat monitoring methods include photo points, vegetation transects, macro invertebrate sampling, low level aerial imagery, and stream profiles.

Analysis of Effects

The Lakeview RMP identifies land use authorizations that have the potential to affect fish habitat (Chapter 1B Fishes, Table 1). Because spotted frogs are riparian obligates and could be affected similarly by the same land uses that affect fish, the analysis of potential effects of a given land use on frogs would be comparable to those for Warner suckers.

Cumulative Effects

BLM does not believe that cumulative impacts to spotted frogs would result from land uses associated with the Proposed Lakeview RMP because mitigation or avoidance measures in place for riparian

conservation areas are likely to be effective in meeting conservation and recovery goals for the species.

Conclusion

BLM determines that implementation of the Lakeview RMP is not likely to imperil the survival of the species, but that it may have negative affects on local frog populations. Specific land management directions addressed in the Lakeview RMP that could have negative impacts to spotted frogs on public land are mining, especially for locatables, fire management, grazing, recreation, OHV use, and roads.

As Federal candidates, Columbia spotted frogs receive higher priority for the application of management actions than other special status species except for those that are listed or proposed. However, they are not subject to protections inherent in the Section 7 consultation process. The BLM would manage spotted frog habitat in accordance with the Lakeview RMP as described under the Management Goal for Special Status Animal Species. Specific bjectives would be introduced into BLM activity plans to assure habitat needs for the species are met.

The Lakeview RMP implements aquatic conservation strategies on the watershed scale, thereby avoiding maintenance of fragmented networks of degraded habitat that do little to recover metapopulations.

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